University of Alberta

Comorbidity in AD/HD, ODD, and CD: Diagnostic, Etiological, and Treatment Considerations

by

Leslie Marlon Berg

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Education

Department of Educational Psychology

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L. m. Berg

Leslie Marlon Berg
#9 52212 Range Road 272
Spruce Grove, Alberta
T7X 3R6

April 15/02

Date submitted to the Faculty of Graduate Studies and Research

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Comorbidity in AD/HD, ODD and CD: Diagnostic, Etiological, and Treatment Considerations submitted by Leslie Marlon Berg in partial fulfillment of the requirements for the degree of Master of Education.

Supervisor: Dr. Jack S. Goldberg

Dr. Christina M. Rinaldi

Dr. Carol A. Leroy

12 April 2002

Date Approved By Committee

DEDICATION

In loving memory of

my father, Norman Berg (1922-1990)

and

my mother, Fern Marie Millard (1923-2002)

both of whom

set an example of charity, hard work, perseverance,

and

devotion to God

amid financial and medical hardships

which blessed the lives of their friends, relatives, and posterity.

ABSTRACT

DSM-IV-TR (2000) includes over 350 diagnoses some of which are highly comorbid. Theoretical explanations suggest that comorbid disorders may constitute a diagnostic basin characterized with a common core symptomotology and a biologically-based etiology. Attention-Deficit/Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) have numerous commonalities including high rates of comorbidity inferring that they could be different manifestations of the same disorder. In the present study, 50 practitioners, who treat children with AD/HD, ODD, and/or CD, were surveyed on treatment preferences, in particular, the usage of medication (either alone or in conjunction with another intervention). It was found that 73% of the sample felt that medication management was the most effective treatment for AD/HD. Behavioral therapy was considered slightly more effective than medication management (45% vs. 41%) for ODD/CD, however, support for medication management increased dramatically for ODD/CD + *AD/HD*. It is speculated that ODD/CD symptoms diminish concurrently with AD/HD symptoms with medication management because of a shared genetic liability, however, further research is needed to substantiate this belief.

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CHAPTER 1

INTRODUCTION

The DSM: A Product of Over-Classification?

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM), published by the American Psychological Association (APA), is commonly used by a wide variety of professionals throughout North America to classify and diagnose mental disorders. The first edition (DSM-I), which was introduced in 1952, contained "loosely defined" categories (60 possible diagnoses) which emphasized an etiological-based nosology whereas subsequent editions have moved towards a more descriptive approach (Maxmen & Ward, 1995, p. 10). After almost 50 years of evolution, we now have a highly articulated categorical classification system which has grown dramatically in size and content. DSM-IV-TR, the most recent edition, is a 943 page text with over 350 distinct diagnostic entities (APA, 2000).

Rothman claims that this "boom in psychiatric syndromes" is a product of our current classification system rather than a reflection of declining mental health in our society adding that "many of the disorders...have overlapping criteria and subtle manifestations" (*The Washington Post*, April 13, 1997). In support of this position, Van Pragg (1996) writes, "the apparent *accumulation* of psychiatric disorders in individual patients seems to be a product of the way mental disturbances are being categorized, drawing borders where no genuine distinctions exist [italics added]" (p. 129).

The APA (2000) makes the disclaimer that, "there is no assumption that each category of mental disorder is a complete discrete entity with absolute boundaries

dividing it from other mental disorders" (p. xxxi), however, the format of the DSM would suggest otherwise. Each disorder is characterized with a specific set of criteria, enclosed in attractive graphic borders separating it from the rest of the text. Consequently, some disorders, such as Attention-Deficit/ Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) bear little or no semblance to each other (see Appendices I-III) eventhough all three disorders belong to the same diagnostic class commonly known as *Attention-Deficit and Disruptive Behavior Disorders*.

The method used in the DSM to organize mental disorders works best "when all members of a diagnostic class are homogeneous, when there are clear boundaries between classes" (APA, 2000, p. xxxi). As a result of ongoing revisions to the DSM, the APA has taken what are considered homogeneous subgroups and further delineated them into diagnostically distinct yet categorically similar disorders. This approach to the classification of mental health disorders has not only greatly enlarged our selection of diagnostic possibilities, but as a byproduct it has increased the prevalence of, and interest in, a diagnostic phenomena known as *comorbidity*.

The 1990's: The Decade of Comorbidity

The notion of comorbidity is not new, however, its popularity as a viable tool in the field of psychiatric research only become evident during the 1990's - what one article coined "The Decade of Comorbodity" (Stahl & Clarizio, 1999, p. 41). Angold et al. (1999) report that "a number of review articles have detailed the importance of taking comorbidity into account for understanding the etiology, course, and treatment of psychiatric disorders" (p. 58). Additionally, it has been suggested that by applying what

we know about comorbidity, we may be able to correct and validate "psychiatric nosology" - the classification of diseases (Angold et al., p. 57). For example, Jensen et al. (1997) report that we need a better understanding of "AD/HD comorbidity patterns" to redefine homogenous subgroups (p. 1065).

Research on comorbidity tends to be divided into two major approaches referred to as the *lumpers* and the *splitters* (Van Pragg, 1996). The intent of the lumpers is to establish commonalities among disorders in order to find ways to group similar disorders together with the goal of simplifying our current classification systems (Wittchen, 1996). The following quote exemplifies this position, "substantial confusion has...emerged from the lack of evidence for distinct boundaries between the major classes of mental disorders as defined in the new classification systems" (Wittchen, p. 10). The lumpers claim that too much *splitting* may produce additional labels which refer to different manifestations of the same disorder and therefore complicate our current nosology.

The splitters favor the division of mental disorders into smaller units, subdividing what is already in place to accommodate what appear to be significant differences. For example, with respect to disruptive behavior disorders (DBDs) Loeber et al. (2000) have stated, "The majority of empirical evidence supports a distinction between ODD and CD... as well as distinctions between...AD/HD and both ODD and CD" (p. 1469). A fundamental premise in the splitters' position is the fact that there are many children who have *pure* AD/HD, ODD, or CD hence the justification for three separate and distinct categories. Inherent in this argument is the assumption that most, if not all, clinical diagnoses are reliable.

An important distinction should be made between *theory* and *definition*. While

the theoretical explanations of comorbidity are somewhat complex and not widely understood, the operational definition of the term is common knowledge and readily accepted by most contemporary researchers and practitioners. From a clinical perspective, comorbidity may be defined simply as, *'a current state of mental health in which two or more psychiatric disorders are diagnosed in the same patient'*. In contrast, theories on comorbidity provide a set of explanations as to 'why' this phenomena is occurring.

One idea which has been advanced by some researchers is that comorbid disorders have a common etiology. For example Van Praag (1996) has suggested that it might be beneficial to study comorbid disorders which have considerable symptom overlap to determine whether they constitute a *diagnostic basin* which has a bio-etiological link. A diagnostic basin may be conceptualized as a class of related disorders, such as AD/HD, ODD, and CD, which conceivably may share a common etiology by virtue of their homogeneity. The study of *commonalities* between disorders which have a high incidence of comorbidity is a pragmatic way to validate theory. The ultimate goal is to isolate the etiological antecedents and thereby improve intervention.

The Case of AD/HD, ODD, and CD

AD/HD, ODD, and CD have numerous commonalities or *links* which, when properly organized, fit closely the theories on comorbidity. These links can be grouped into four categories: 1) comorbidity prevalence rates, 2) overlap in core symptoms, 3) etiological similarities, and 4) treatment outcomes. Of particular interest to the writer are the findings which are beginning to emerge in the area of interventions. For example, recent studies indicate that ODD and CD, which have not generally been considered

medication responsive, have been successfully treated with the same medication which is used to treat AD/HD (Conner et al., 2000, Barkley, 1998, Rey & Walter, 1999). One concern with the use of medication for AD/HD, has always been that not *all* of children with this disorder respond favorably, however, this was not the case when Conner and his colleagues Barkley and Davis (2000) combined a stimulant with an antihypertensive. In addition, Jensen et al. (1999), found that *mono-therapy* (medication alone) was just as effective as a *multi-dimensional* approach (i.e., medication plus behavioural therapy) in the management of AD/HD, ODD, and CD symptomotologies.

Studies on DBD comorbidity patterns could have serious implications for the classification, etiology, and management of these disorders. If it can be shown that these disorders have high rates of comorbidity, overlapping symptoms, etiological similarities, and remedial links, it may support the idea that comorbid disorders form a diagnostic pool which is characterized with a common etiology. Hence, AD/HD, ODD, and CD may be different expressions of the same disorder which would warrant a singular diagnostic classification thereby eliminating nebulous boundaries, symptom overlap, and variations in treatment. Ironically, the World Heath Organization (WHO) have already adopted this approach in the International Classification of Diseases (ICD- 10) - ODD and CD are not differentiated but instead are considered one diagnostic entity (Steiner & Wilson, 1999).

Objectives and Justification for Study

AD/HD is considered the most common mental disorder that "pediatricians, family physicians, neurologists and psychiatrists treat in children" (Wilens et al., 1999, p. 1). Similarly, ODD and CD "continue to be the predominant juvenile disorders seen in

mental health and community clinics" (Loeber et al., 2000, p. 1468). AD/HD, ODD, and CD are also frequently cited as clinical concerns in studies on juvenile crime, in particular crimes involving acts of violence, such as homicides, rapes, aggravated assaults, etc. (Bailey, 1997; Farrington & Loeber, 2000; Karr-Morse & Wiley, 1997; Myers & Blashfield, 1997; Scott, 1999; Yeager & Lewis, 2000). Furthermore, from an educational perspective, it has been reported that 67% of school children with behavioral problems (which continued from preschool), met the criteria for AD/HD, ODD, or CD (Loeber et al., p.1471).

As a consequence, AD/HD, ODD, and CD have been the focus of countless research projects and have posed as many questions for the scientific community as they have for front-line practitioners. There are ongoing controversies surrounding the etiology, diagnosis, classification, assessment, and treatment of these disorders. A great deal of this conflict is tied to a multiplicity of theories of causation all of which have some merit but none of which have been universally accepted. The study of comorbidity is simply another tool to explore causation, one however, that has not been utilized in great depth.

A key objective of the present study is to identify and apply the theoretical tenets of comorbidity to DBDs. A second objective is to determine from a literature review what commonalities exist between AD/HD, ODD, and/or CD, in particular, whether medication alone, or in combination with another intervention, is equally effective in the treatment of all three disorders. The final objective will be to examine data from a community survey in Edmonton on treatment patterns for children with DBDs, to identify whether the same or different interventions are being used to treat pure and comorbid

expressions of AD/HD, ODD, and CD.

For the purpose of this thesis, it is important to provide operational definitions of certain terms in order that the reader might have a clearer understanding of the material. A *child*, *children*, or *school-age children*, shall be defined as anyone between the ages of 6 years and 17 years. The term AD/HD, of which there are three subtypes: 1) *inattentive*, 2) *hyperactive/impulsive*, and 3) *combined*, shall denote the 'combined' type unless otherwise specified. According to Wilens et al. (1999), AD/HD - the combined type, is the most prevalent (50% to 75%); unfortunately, many studies do not discriminate between the three subtypes. The phrases mental *disorder*, mental *illness*, and mental *disease* are often used interchangeably in the literature, however, the term 'disorder' has been adopted by the psychology community because of its extensive usage in the DSM series and therefore, is the logical choice for this paper.

CHAPTER 2

LITERATURE REVIEW

Overview of Chapter

This chapter will begin by examining those theories on comorbidity which are relevant to this thesis, and how these theories might best be applied to enhance our knowledge concerning the origins and clinical trajectories of DBDs. With a basic understanding of the theoretical framework on comorbidity, the remainder of the chapter will be devoted to identifying and analyzing the diagnostic, etiological, and treatment commonalities between AD/HD, ODD, and CD. These commonalities, in conjunction with the theories on comorbidity, constitute the foundation of this study and the belief that these disorders share a common biological deficiency which is responsive to any intervention which includes the use of medication.

Comorbidity: Theory and Application

The concept of comorbidity has become an increasingly popular topic in clinical psychology and psychiatry over the last two decades. Angold et al. (1999) conducted what they termed a "crude index of interest" survey on the PsychINFO database and found that the number of related citations had increased exponentially from 1 in 1986 to 143 in 1997 With the rising interest in this topic and the frequent usage of the term in the literature, it is not surprising to find that a recent epidemiological study on psychiatric disorders conducted in the United States, was called the "National Comorbidity Survey" (Angold et al., 1999, p. 57).

According to Wittchen (1996), large scale cross-sectional epidemiological studies

in various countries reflect that the "co-occurrence of more than one disorder in one person is not a rare phenomena....[and] at least one third of all current cases in general population samples fulfil diagnostic criteria for more than one disorder" (p. 9). Rates in primary health care settings are reported as being even higher, with clinical psychiatry comorbidity rates being the highest (Wittchen, p. 7). The prevalence rates of comorbidity among schoql-age children who suffer from DBDs are reportedly "higher than with other mental disorders" (APA, 2000, p. 88).

To understand more clearly the research pertaining to comorbidity, it is important to clarify the distinction between *symptomatic* and *asymptomatic* disorders or, as referred to by Angold et al. (1999, p. 58), *homotypic* and *heterotypic,* respectively. Symptomatic comorbidities include those disorders which share the same diagnostic grouping such as AD/HD, ODD, and CD, which are officially classified by the APA (2000) as *Attention-Deficit and Disruptive Behavior Disorders*. Conversely, schizophrenia - a *psychotic disorder*, anorexia - an *eating disorder*, and insomnia - a *sleep disorder*, are categorically different and therefore would be considered an asymptomatic comorbidity, assuming that all three were diagnosed in the same patient at any one given time.

This distinction between symptomatic and asymptomatic comorbidities may be taken a step further to include the *overlap* in symptoms between the former. For example, the APA (2000) has stated that "all of the features of ODD are usually present in CD" (p. 102). Given the similarities in descriptive features between symptomatic comorbid disorders, it may be postulated that these types comorbidities are related *descriptively* as well as categorically. Symptom overlap in symptomatic comorbidities is reported in varying degrees in the literature, however, with AD/HD, ODD, and CD, there is a higher

rate of uniformity which will be examined in greater detail later in this chapter. The writer has identified three theories, presented by Van Pragg (1996), which provide a reasonable explanation for the origin and clinical pathways of comorbid disorders. Two of the these have been dubbed by Van Pragg as the *hierarchical order,* and *one stem, many branches*. The third, a convergence of the other two, remains untitled. It is acknowledged that none of these are meant to be all inclusive, however, they do constitute a good starting point for this examination. These theoretical explanations relate specifically to the biological branch of research. To facilitate the application of these three theories, the writer has created structural pathway models (Figures 1, 2, and 3) which include AD/HD, ODD, and CD.

The 'hierarchical order' model (Figure 1), suggests that when a comorbidity occurs, only *one* disorder is considered the primary syndrome - the others are known as secondary (or derivative) syndromes, meaning a secondary response to the principal disturbance. The relationship between the primary and secondary syndrome is thought to form a *vertical* or hierarchical relationship. For example, damage in the prefrontal lobes is considered by many to be one possible explanation for AD/HD (Jensen, 2000; Yeager & Lewis, 2000; Karr-Morse & Wiley, 1997). In accordance with this theory, AD/HD would be the primary syndrome; ODD and CD would be described as derivative syndromes, characterized with cognitive impairments which are consequential to the prefrontal lobe damage found in AD/HD.

This theory postulates that a hierarchical relationship exists between the primary and the secondary syndromes, however, it does not make the same assumption for the secondary syndromes. In other words, ODD and CD themselves do not necessarily form a

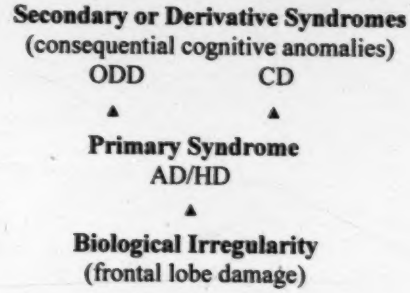

Figure 1. The Hierarchical Order Comorbidity Pathway Model. Created by the writer based on Van Pragg's (1996) description of this theory. The terms AD/HD, ODD, and CD have been inserted to give the model an applied effect.

hierarchy such that one must occur before the other does. One or both may present but no *order* per se is specified by this theory.

The 'one stem, many branches' model (Figure 2), offers an alternate structural hypothesis which is said to be *horizontally*, as opposed to vertically, generated. A single biological abnormality may be linked to several psychological *domains* which correspond with the various symptoms found in comorbid disorders. For example, there is some evidence that the neurotransmitter serotonin regulates a variety of cognitive functions which influence aggression, impulse control, moods, anxiety and perception (Van Pragg, 1996; Inaba et al. 1997). Therefore, a deficit in the serotonin levels could reasonably be expected to generate neuro-behavioural impairments which are associated with many of the symptoms observed in children with AD/HD, ODD, and/or CD, in particular, aggression, impulsiveness, and mood liability.

This theory focuses more on the symptoms associated with comorbid disorders rather than the disorders themselves. Intervention techniques, in the form of medication, are targeted at the primary deficiency, i.e., the serotonin deficit, in an effort to correct

Biological Irregularities	Psychological Disturbances	Possible Syndromes
Serotonin Deficit	▸ impulsiveness ▸ mood lability ▸ aggressiveness	▸ AD/HD ▸ ODD/CD

Figure 2. One Stem, Many Branches Comorbidity Pathway Model. Created by the writer based on Van Pragg's (1996) description of this theory. The terms AD/HD, ODD, and CD have been inserted to give the model an applied effect.

several behavioral symptoms. This theory does not concern itself with primary or secondary syndromes as the clinical entities are not the focus of attention hence it also fails to provide any insight regarding the *sequence* in which the secondary syndromes might appear. The goal here is to pinpoint a primary deficit at which to direct treatment initiatives in an effort to correct the cognitive and behavioural abnormalities.

The third model (Figure 3), which is untitled, integrates the features of both the hierarchical order, and the one stem, many branches models. Van Pragg (1996) postulates that a biological irregularity, such as a serotonin deficit, could be causing what he refers to as the *core* symptoms (i.e., attention-deficit, impulsivity, and/or aggression) which form the nucleus of a primary syndrome, such as AD/HD. The derivative syndromes, like ODD and CD, also contain the core symptoms, but in varying degrees. The disturbance which is producing the core symptomotology could be attributed to a variety of neuro-biological antecedents such as a serotonin deficit, a genetic abnormality, or prefrontal lobe damage. There is still a hierarchical relationship between the primary and secondary syndromes, however, like the other two theories, there is no information provided by Van Pragg with respect to the order in which the derivative syndromes emerge. This theory

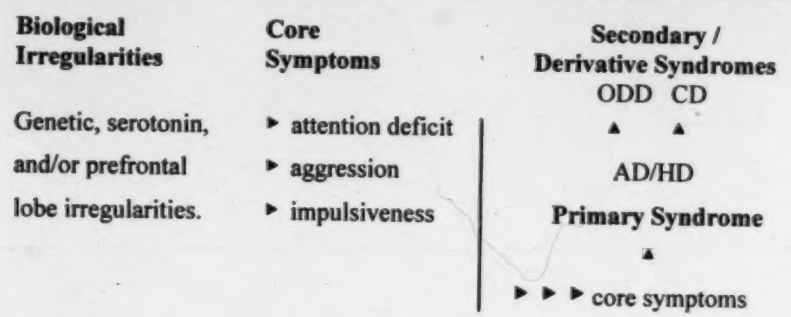

Figure 3. Hierarchical Order / One Stem, Many Branches Integrated: Comorbidity pathway model created by the writer based on Van Pragg's (1996) description of this theory.

allows for both the identification of clinical entities, and an analysis of the core symptoms which are common to those entities. Remedial interventions target the core symptoms and in the process correct the corresponding disorders.

Of the three models, the latter closely parallels the writer's belief that there are basins of related disorders, such as AD/HD, ODD, and CD, which respond to medication because they share a common core symptomotology. The only apparent weakness in this, and the other theories presented by Van Pragg (1996), is the lack of reference to the *order* in which the various syndromes may appear. From a developmental perspective, the sequence of appearance of the comorbid disorders could have significant theoretical and practical implications with respect to either the additive or interactive variable.

Research on DBDs and comorbidity patterns frequently address the *additive* or *interactive* nature of AD/HD, ODD, and CD. Figure 4 illustrates the distinction between these two processes which are fundamentally different. An additive relationship may be conceptualized as related items on a continuum which share similar features but differ in terms of rank and severity on the continuum; the higher the ranking the greater the

Additive	Interactive	Additive / Interactive
AD/HD ▸ ODD ▸ CD	AD/HD ◂ ▸ ODD	ODD◂ ▸ CD
	AD/HD ◂ ▸ CD	▲
	ODD ◂ ▸ CD	AD/HD

Figure 4. Structural Models of Additive and Interactive Relationships. The examples provided above are not mutually exclusive. None of these models include the comorbidity factor, i.e., AD/HD ◂▸ AD/HD + CD (interactive model).

severity of the profile. For example, according to the APA (2000), "The disruptive behaviors of individuals with ODD are of a less severe nature than those of individuals with CD" (p. 101). To illustrate this point from both a quantitative and a qualitative perspective, the following analogy is provided. If 2, 4, 6, 8, and 10 pieces of dynamite were placed in five consecutive positions on a road, 4 pieces would generate a larger blast than 2, and similarly 10 would have more impact than 8. Although each piece of dynamite contains the necessary agents to produce an explosion the impact increases exponentially with the quantity of dynamite. The interactive model, on the other hand, is a reciprocal relationship in which one order is acted upon by another although it is difficult to ascertain the point of origin of the interaction. This model is *not* characterized with a cumulative effect as a function of the interaction.

With respect to comorbid DBDs, there is some debate as to whether they are additive, interactive, or both. A hierarchical relationship implies that the primary syndrome is at the bottom of the hierarchy and the secondary syndromes are at the top of structure, however, if all of syndromes are additive in nature it implies that there is a sequential order to the secondary syndromes with respect to development and level of severity. In light of the APA's comments on the severity of ODD behaviors in

comparison to CD behaviors, there appears to be a hierarchical relationship between these two disorders essentially creating three theoretical levels: 1) primary, 2) secondary, and 3) tertiary. With this in mind, the writer has modified Van Pragg's unnamed theory to incorporate the additive effect as illustrated in Figure 4. The writer has entitled this model, *The Additive Comorbidity Pathway Model* (Berg, 2002). To validate some of the

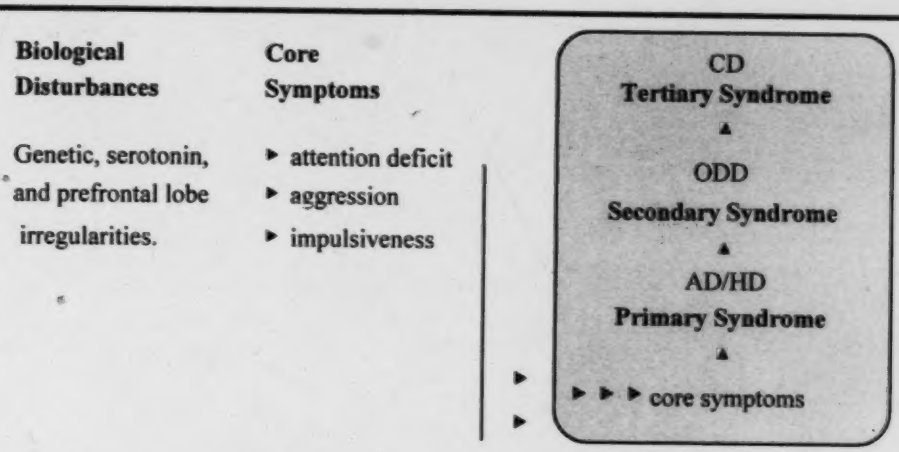

Figure 4. The Additive Comorbidity Pathway Model developed by Berg (2002). Derived from the works of Van Pragg's (1996). The highlighted section is graphic depiction of a *diagnostic basin*.

tenets found in the writer's theory, there should be some evidence in the literature which suggests that certain core symptoms are not only common to all three disorders but in fact increase in severity as a function of comorbidity.

In order to determine if DBDs constitute a diagnostic basin, there should be numerous commonalities between these disorders with respect to comorbidity prevalence rates, symptom overlap, etiology, and treatment. The remainder of this literature review is devoted to an examination of these correlates to determine if sufficient evidence exists to substantiate the belief that symptomatic disorders, such as AD/HD, ODD, and CD, can be

linked to a common biologically based origin which in turn, would account for the high rates of comorbidity and symptom overlap.

AD/HD, ODD, and CD: Comorbidity Prevalence Rates

The purpose of this section is to demonstrate that AD/HD is highly comorbid with either ODD or CD which implies that there is a fundamental link between these three disorders. As a point of clarification, however, Eiraldi et al. (1997) provide considerable evidence that AD/HD - *combined* type is significantly more comorbid than either the *inattentive* or *hyperactive/impulsive* types. The DSM-IV-TR allows for two possible diagnostic comorbidities with DBD's which include: 1) AD/HD + ODD, and 2) AD/HD + CD. Since all of the features of ODD are usually found in CD, ODD is not diagnosed if the criteria is met for CD (APA, 2000), consequently, ODD + CD is not considered a valid clinical diagnosis. Therefore, AD/HD + ODD + CD would also be clinically invalid from a diagnostic perspective.

As there is a multitude of studies which provide statistical data on the prevalence of AD/HD comorbid with either ODD or CD, the writer has selected representative ones to illustrate the magnitude of these correlations. The APA (2000) has reported that "approximately half of clinic-referred children with AD/HD also have ODD or CD" (p. 88). There is, however, considerable variance in the prevalence rates when comparing one study to another. Rohde et al. (1999), in a study of 1013 Brazilian students, ages 12-14, found that 4.6% met the DSM-IV criteria for AD/HD. Comorbid ODD was 21.7% and comorbid CD was 26.1% (Rohde et al., p. 718). In contrast, Bird et al. in a two stage epidemiological survey of Puerto Rican children, report that 93% of those with ADD (DSM-III) had comorbid ODD/CD (Jensen et al., 1997, p. 1076). These differences are

significant and could constitute a study in itself, however, for the purpose of this paper, it is sufficient to demonstrate that AD/HD + ODD or CD have been frequently observed and recorded. Table 1 cites several studies conducted between 1987 and 1999 which support this assertion.

Based on the information contained in Table 1, the prevalence rates for AD/HD + ODD range from 21.7% to 54% and for AD/HD + CD the range is 9.6% to 56%. Some of the studies in Table 1 have not differentiated between ODD and CD, and have reported their results as simply AD/HD + ODD/CD. In these instances the prevalence rates range from 17.3% to 93%, however, 93% would appear to be an outlier and a more accurate range would be 17.3% to 43.8%. These figures are a little more conservative than those of Biederman et al. (1991) who, after reviewing 29 studies, report that AD/HD + ODD/CD occurred in approximately 30% to 50% of all cases. Barkley's (1998) estimates are slightly higher at 54% to 67% for AD/HD + ODD and 20% to 56% for AD/HD + CD.

From a developmental perspective, it is worthy to note that for children *ages 12 and under*, the prevalence rates for AD/HD + ODD range from 26.5% to 47.2% whereas the range for AD/HD + CD for the same age group is 9.6% to 15.6%. In contrast, for children *over the age of 12 years*, the range for AD/HD + ODD is 21.7% to 54% and the range for AD/HD + CD is 18% to 56%. These figures suggest that ODD is more prevalent for the younger cohort, however, during adolescence, ODD and CD prevail equally. This pattern also implies that ODD is a developmental precursor to CD. Similarly, some authors have indicated that AD/HD increases the risk for ODD in the same way that ODD increases the risk for CD (Loeber et al., 2000; Rey & Walter, 1999; Steiner & Wilson, 1999) which suggests that AD/HD, ODD, and CD constitute a

Table 1

Prevalence Rates for AD/HD Comorbid With Either ODD or CD

Year	Study	N	Ages	AD/HD	AD/HD (%) comorbid with /		
					ODD	CD	ODD/CD
1987	Anderson et al.	792	11	53	47.2		
1989	Offord et al.		<12				17.3
1989	Offord et al.		12-16				42.7
1989	Cohen et al.	776	9-18	93	54	56	
1989	Szatmari et al.	2687	4-16	150		42.7	
1992	Pelham et al.	931	5-14	61	44.2	18	
1993	Bird et al.		9-16	222			93
1995	Baumgaertel et al.	1077	5-12	192			19
1996	August et al.	7000	6-9	204	31.9	12.3	
1996	Wolraich et al.	8258	5-12	943	30.2	15.6	
1998	Wolraich et al.	4323	5-12	698	26.5	9.6	
1999	Rohde et al.	1013	12-14	59	21.7	26.1	
1999	Scahill et al.	449	6-12	89			43.8

Note. ODD/CD = data combined by authors Means (M): ODD = 36.5, CD = 25.8, ODD/CD = 43.2

Sources: Scahill & Schwab-Stone, 2000; Rohde et al., 1999; Jensen et al., 1997; Stahl & Clarizio, 1999

developmental pathway which is characterized by the additive affect.

Scahill and Schwab-Stone (2000) report that "comorbidity is common in AD/HD regardless of whether the sample is ascertained from clinical settings or community sources" (p. 552). High comorbidity rates among DBDs occur far too often to be considered merely the product of chance occurrence. However, the argument has been made that high comorbidity rates do not necessarily imply similar etiologies. Barkley (1998) has stated, "Earlier, some investigators had expressed the belief that AD/HD and conduct problems were the same or quite similar disorders but more recent research

indicates that *relatively* pure cases of both can be found and that these disorders are *likely* to have different etiological correlates [italics added]" (p. 142). In accordance with this, some researchers are now advocating that the DSM be revised to include comorbid subgroups, such as AD/HD + CD which seem to be etiologically different in comparison to cases of *pure* AD/HD or CD (Eiraldi et al., 1997, Jensen et al., 1997).

Barkley's usage of the words "relatively" and "likely" are wisely chosen given that a great deal of the research on DBD's is fraught with methodological complications. For example, Jensen et al. write, "Assessment of AD/HD is problematic because of the lack of rules for integrating information from diverse sources and the lack of consensual definitions of the disorders caused by its perpetually changing conceptualizations" (1997, p. 1077). Or as noted by Maxmen and Ward (1995), "separating AD/HD from CD can be tricky....[and] children with ODD disorders may look like a CD [child]" (pp. 442,446). Scahill and Schwab-Stone (2000) claim that there is "no definitive diagnostic test for AD/HD" (p. 542); clinicians and researchers must rely upon information gleaned from interviews, behaviour rating scales, and observations, all of which are subject to biases.

Clinical and community assessments may be influenced by a variety of observer characteristics and biases which may explain, in part, why AD/HD prevalence rates range from a low of 2% to a high of 20% across North America (APA, 2000; Wilen et al., 1999; Sattler, 1992; Maxmen and Ward, 1995). Similar concerns are noted with the incidence of CD which may range anywhere from 1% to 16% due to "the lack of consensus concerning its definition and specific behavioral components" (Stahl & Clarizio, 1999, p. 41; Steiner & Wilson, 1999).

Historically, AD/HD has been highly prone to *mis-diagnosis* and *over-diagnosis*;

one could argue that the cases of pure AD/HD may have been nothing more than 'age appropriate behaviors' which were misinterpreted, and that all of the other cases of AD/HD may in fact share the comorbidity feature. There are a multitude of extraneous variables which make it very difficult to form absolute conclusions concerning prevalence rates or the *purity* of a syndrome. Until we devise a more scientific way to diagnose DBDs, (i.e., through brain wave patterns), our conclusions are tentative at best. The only thing we can really be sure in terms of diagnosis is that some symptoms associated with AD/HD, ODD, and CD are corrected with treatment notwithstanding the diagnosis itself may be in error. Given the lack of conceptual clarity for these three disorders, it is reasonable to suggest that intervention strategies target the *symptoms* not necessarily the *syndromes*.

AD/HD, ODD, and CD: Overlap in Symptomotologies

Based on the foregoing section, it may be argued that the diagnostic boundaries which separate AD/HD, ODD, and CD are not easily discerned and in fact overlap to the extent that it is often difficult to determine where one ends and the other begins. The purpose of this section is to provide further evidence, in terms of symptom overlap, to demonstrate that these disorders are remarkably similar in their outward appearance.

In 1901, at the Royal College of Physicians in London, G. Still presented the first official description of what is now commonly known as AD/HD (Solanto, 2001). In a case study involving 20 disruptive children, Still observed symptoms of overactivity, inattention and poor inhibitory volition. Also cited were symptoms of aggression, defiance, resistance to discipline, lawlessness, spitefulness and dishonesty. These latter traits have since been assimilated into what we now refer to as ODD and/or CD. It is

interesting that this array of symptoms were once all associated with one condition.

In an effort to uphold our current classification system, the APA would argue that we know more now than we did then in 1901 and therefore we are justified in separating what are intended to be homogeneous categories into discrete entities. Why then, more than a century later, after articulating what is and what is not a DBD, are we still encountering diagnostic dilemmas with the DSM classification system? The following quotation concerning CD is reflective of this impasse, "Compounding the *differential* diagnosis is the comorbidity problems with AD/HD; efforts were made with DSM-IV to *minimize symptom overlap* [italics added]" (Rogers et al., 1997, p. 263).

Evidence of these diagnostic dilemmas or ambiguities are found in Table 2 which compares the essential features for AD/HD, ODD, and CD, with the associated features of the same disorders in the most recent publication of the DSM (APA, 2000). The essential features column clearly represent three distinct syndromes, which are categorically and descriptively different. In contrast, the associated features column by

Table 2

Comparison of *Essential* and *Associated* Features for AD/HD, ODD, and CD

Condition	Essential Features	Associated Features
AD/HD	inattention, hyperactivity, impulsivity	low frustration tolerance, mood lability, temper outbursts, academic impairment
ODD	negativistic, defiant, disobedient, hostile behavior toward authority figures	problematic temperament, mood lability, low frustration tolerance
CD	behavior in which the basic rights or major age-appropriate societal norms or rules are violated	poor frustration tolerance, irritability, temper outbursts, academic impairment

Note. Source: APA (2000, pp. 85, 87, 88, 93, 96, 100)

virtue of the similarities would appear to represent one syndrome which is characterized with: 1) low/poor frustration tolerance, 2) problematic temperaments/temper outbursts, and 3) mood lability. If there is a causal connection between these disorders, suggesting that they may be different manifestations of the same deficiency, one should expect to find considerably more evidence of symptom overlap, as exemplified in Table 2. Studies on DBD comorbidity patterns provide such evidence.

Biederman et al. (1995, 1996), reported that children with AD/HD + *ODD/CD* exhibited more severe symptoms of *irritability*, *mood lability,* and *temper outbursts* than children with AD/HD only. In a related study, Jensen et al. (1997) observed that children with AD/HD + *CD* had increased *academic impairment* than children with AD/HD only. It may be suggested from these studies that when AD/HD is comorbid with either ODD or CD, the associated features (identified earlier in Table 2), are intensified as a *function of comorbidity* - the additive effect. These findings also reinforce the idea that all three of these disorders are characterized with the *associated* features.

Symptom overlap resulting in increased symptom severity, however, is not just limited to the associated features of DBDs, but can also be seen in the *essential* features of AD/HD, ODD, and CD (identified earlier in Table 2). For example, Burns et al. (1997) report that there is a marked overlap between the *impulsive/hyperactive* dimension of AD/HD and the *oppositional/aggressive* traits associated with ODD/CD. Similarly, some researchers have reported that *aggression*, which is typically associated with severe cases of CD, has also been observed in children with AD/HD (Weller et al., 1999; Yeager & Lewis, 2000). It has been suggested by many authors (Conner et al., 2000; Hendren, 1999; Karr-Morse & Wiley, 1997) that *poor impulse control* is the underlying deficiency

which is common to all three disorders. This assertion supports the idea that AD/HD, ODD, and CD may be better represented in the DSM by a single classification which has a bio-etiological irregularity common to all three disorders.

Studies have also been conducted which compare the essential features of *pure* and *comorbid* DBDs to determine whether there is variability in the core symptoms between children with AD/HD only and children with AD/HD + ODD/CD. Newcorn et al. (2001), in one such analysis, found that both groups of children (AD/HD only and AD/HD + ODD/CD) displayed high levels of inattention, impulsivity and hyperactivity, however, the AD/HD + ODD/CD group were rated by parents and teachers as having higher rates of impulsivity and hyperactivity when compared to the AD/HD only group.

Angold et al. (1999) in their review of DBD comorbidity patterns, cited 4 related studies which reported that children with both AD/HD + ODD/CD had higher levels of ODD/CD symptoms than children with CD only. Stahl & Clarizio (1999) also reported that AD/HD with a comorbid diagnosis of either ODD or CD results in more severe AD/HD and ODD/CD behaviours. In 1997, Kuhne et al. (1997) observed that AD/HD + CD led to higher levels of aggression when compared to either AD/HD alone, or AD/HD + ODD adding that ODD may be thought of as a milder form of CD. These findings, along with those of Newcorn et al. (2001) provide further evidence that the defining features of AD/HD, ODD, and CD not only overlap but increase in severity as a function of comorbidity.

AD/HD, ODD, and CD: Etiological/Treatment Correlations

When disorders are found to be comorbid, it can have a dramatic impact on treatment and etiological considerations. For example, Van Pragg (1996) cited a study

of 15 patients who suffered from depression (DEP) comorbid with obsessive-compulsive disorder (OCD) who were treated with electroconvulsive therapy (ECT). Following the ECT, 6 of the patients experienced a complete disappearance of both conditions, 3 had a full recovery from DEP and a partial recovery from OCD, and of the remaining 6, OCD persisted while the DEP was either partially or completely corrected. Given that OCD is not generally treated with ECT but DEP is, it was concluded that the OCD, a derivative disorder, was bio-etiologically linked to the DEP, the primary syndrome.

According to Jensen (2000), 40 years of research has failed to identify the exact cause of AD/HD therefore prevention is difficult (p. 557). Similar comments might also be made of *all* DBDs, however, as qualified by Jensen, there is much that we do know about AD/HD, along with ODD and CD. For example, the APA (2000) has reported that both AD/HD and CD seem to be influenced by both genetic and environmental factors, and that ODD is environmentally linked.

Biological and environmental factors may be considered to operate independent of each other or they may be interdependent. Maxmen and Ward (1995) coined the term *environmental-biology* to describe a "two way relationship between the environment and biology in the production of mental disorders" (p. 67). Expounding upon this concept, Karr-Morse and Wiley (1997) have stated:

> ...genetic deficits stemming from environmental causes such as prenatal exposure to alcohol or drugs...play a strong role in setting up *violent* behavior. By causing subtle changes in the organization of the genes...[the] brain may be damaged, causing....difficulty with...controlling *impulsive* behavior [italics added] (p. 10).

The entire etiological framework for DBDs is a massive structure of major and minor

connections that could be endlessly debated by biologists, environmentalists, and the interactionists, and is beyond the scope of this paper. Given that the explanations for comorbidity, presented earlier in this chapter, are primarily based upon a biological frame of reference, the position of the biologists and/or environmental-biologists should be sustainable. It is acknowledged that environmental factors alone have been cited as antecedents for DBDs, however, these may be simply risk factors for vulnerabilities which are already present at birth. For example, in regards to CD, Steiner and Wilson (1999) have stated, "the current state of knowledge suggests that ecological factors triggers an inherited liability" (p. 61). The same may be true of both AD/HD and ODD.

Barkley (1998) claims that genetics, and more specifically *heredity*, is "one of the most well substantiated etiologies for AD/HD" (Barkley, p. 170). The APA (2000) expressed similar sentiments in a different way, "considerable evidence attests to the strong influence of genetic factors" on measures of hyperactivity, impulsivity, and inattention (p. 90). Genetics are also said to be the major reason why AD/HD symptoms covary with and ODD/CD symptoms (Alasdair & Luk, 2000). For example, Coolidge et al. (2000), cite several studies which provide evidence that the comorbidity heritability of AD/HD + ODD and AD/HD + CD have both been reported in varying degrees in the literature (p. 275).

Consistent with other research findings on AD/HD and CD, figures tend to vary considerably from one study to another. The probability of inheriting AD/HD from a relative or family member ranges anywhere from .61 to 1.0 (Jensen, 2000; Nadder et al., 1998; Wilens et al.,1999). In their review of genetic studies on CD, Coolidge et al. (2000) claim that the heritability rates for CD are similar to those for AD/HD. Steiner and

Wilson (1999) report, "The extent of familial congregation of CD is highly suggestive of genetic determinants of [CD] behaviour" (p. 61). With respect to ODD, the literature is less definitive data although some authors have intimated that ODD has an inherited component (Rey & Walter, 1999).

In terms of comorbidity, the heritability estimates for AD/HD + ODD/CD appear to be relatively the same as those for AD/HD only. Silberg et al. (1996) reported a genetic correlation of 100% between AD/HD + ODD/CD for children (ages 8 to 11 years), however, Nadder et al. (1998) estimated it at closer to 50% (ages 7 to 13 years) when controls were implemented for *contrast effects.* Contrast effects included: 1) the parental tendency to rate identical twins as being more similar, and 2) the inclination to treat identical twins differently, causing competition and increased levels of hyperactivity (Nadder et al.). Given that many heritability estimates are calculated by analyzing the data from behavioral ratings completed by the parents, contrast effects often inflate the figures in identical twin studies.

Most heritability studies utilize twin research designs because of the overlap in twin genes. Identical or *monozygotic* (MZ) are known to share 100% of their genes while nonidentical or *dizygotic* (DZ) share on average 50% of their genes (Coolidge et al., 2000; Nadder et al., 1998). Twin studies also provide an ideal forum to discriminate between genetic and environmental factors as determinants for AD/HD, ODD, and CD. Research designs however, can be very complex and do not always yield the same results.

Coolidge et al. (2000), based on their analysis of twin survey data, report that there is "no evidence of shared environmental influences [family, peers, and school] in the development of AD/HD, ODD, [and] CD" (p. 283), whereas, Nadder et al. (1998)

using a more sophisticated research design, claim that "environmental effects have a *large* influence on the covariation of AD/HD and ODD/CD [italics added]" (p. 92). However, Nadder et al. also estimated genetic influences to be 61% which led them to conclude that, "AD/HD and ODD/CD each have an etiologically distinct component but also have a *set of genes in common* [italics added]" (p. 96). Both studies provide a strong argument for the influence of genetics in the development of DBD's.

The study conducted by Coolidge (2000) also examined executive functions (EF) in relationship to the heritability rates of AD/HD comorbid with either ODD or CD. EF includes a domain of cognitive abilities in which AD/HD children have been found to be impaired or at the very least, at risk (Jensen et al., 2000, Yeager & Lewis, 2000). The correlations for the MZ twins on measures of AD/HD, ODD, CD, and EF ranged from .64 to .81 whereas the DZ twin measures ranged from .12 to .18. According to Coolidge et al., this study was the first to explore the heritability rates between DBD's and cognitive functions. It was concluded by these investigators that AD/HD, ODD, and CD share an underlying biological risk characterized with cognitive deficiencies.

Karr-Morse & Wiley (1997) claim that the dysfunctional genes are not necessarily inherited, but may be the consequence of exposure to toxic substances during pregnancy. The ingestion of chemical toxins, like alcohol and nicotine, during the prenatal period has been linked to a wide range of problems which parallel the core symptoms associated with AD/HD, ODD, and CD (Barkley, 1998; Jensen et al, 2000; Weiten, 1998). For example, Weissman et al., (1999), after a 10 year longitudinal study, reported that the risk for CD quadruples with maternal smoking (at least 10 cigarettes daily) during pregnancy. There is also some evidence to suggest that smoking during pregnancy is related to

increased risks for AD/HD in offspring (Barkley, 1998; Milberger et al, 1996). The links between toxic agents, genetic abnormalities, and the development of DBD's has not yet been well established (Barkley, 1998; Jensen, 2000), however, it does provide additional corroboration of biological antecedents.

With respect to intervention, it is commonly accepted that the majority of the children (approximately 80%) who are diagnosed with AD/HD, respond favorably to methyphenidate, or ritalin as it is more commonly known (Alasdair & Luk, 2000; Conner et al., 2000). But what of the other 20% or more who do not respond to ritalin, either because of inefficacy or negative side effects - is there *another* drug which will work for them? And what about those who are diagnosed with ODD or CD - can they be treated in the same way as those who have AD/HD?

If AD/HD, ODD, and CD, share a common bio-etiological deficiency, then it logically follows that an intervention in the form of medication, should have a remedial effect on all three disorders. Typically, medication alone (mono-therapy) is not the recommended course of action for AD/HD, ODD, and/or CD, however, recent research by Conner et al. (2000) suggests that this may an effective way to manage the core symptoms associated with these disorders. Multi-modal interventions (medication plus another intervention), the 'gold standard' for managing DBDs may not be anymore effective than medication alone despite its popularity (Jensen et al., 1999).

Conner et al. (2000) report that *clonidine*, an antihypertensive, either alone or in combination with ritalin, is effective in treating those with AD/HD who do not respond to ritalin. Clonidine has also been used to treat the symptoms associated with ODD/CD including aggression (Rey & Walter, 1999; Wilens et al., 1999). It has also been found

that clonidine and/or ritalin is effective in the management of comorbid DBD conditions including AD/HD + ODD and AD/HD + CD (Pliszka, 2000 Conner et al. (2000)). It has been suggested that stimulants, such as ritalin, are effective with AD/HD, ODD, and/or CD because all three disorders are characterized with impulsivity (Conner et al.).

In 1992, the National Institute of Mental Health (NIMH) and the Department of Education (United States) initiated a massive study of 579 children to determine how medication compared to behavioral therapy in the treatment of AD/HD, ODD, and CD. This project, which took seven years to complete, incorporated "state-of-the-art" interventions techniques, along with a host of experts. The children were assigned to one of four groups: 1) medication only, 2) behavioural therapy only, 3) combined group - medication and behavioural therapy, and 4) community care (no medication or behavioral therapy). The following findings were reported in this study (Jensen, 1999):

RE: AD/HD:

1. Combined treatment and medication only were superior to behavioral therapy and community care in treating AD/HD core symptoms
2. Combined treatment (multi-modal intervention) was not significantly better than medication alone (mono-therapy) in treating AD/HD core symptoms

RE: AD/HD + oppositional/aggressive behaviors (ODD/CD):

1. Combined treatment was superior to behavioral therapy and community care in treating AD/HD core symptoms and oppositional/aggressive behaviors
2. Combined treatment (multi-modal intervention) yielded modest advantages to medication alone (mono-therapy) in the treatment of AD/HD core symptoms and oppositional/aggressive behaviors

There are three significant implications which can be derived from this study. First, any intervention targeted at AD/HD symptoms should consider the use of medication. This is consistent with Barkley's review (1998) wherein he stated that medication is, "the only

treatment modality to date to demonstrate the normalization of inattentive, impulsive, and restless behavior in children" (p. 510). Secondly, the use of an additive strategy, such as behavior modification, will not significantly enhance the outcome. Thirdly, medication management may be effectively used to correct comorbid symptoms associated with ODD and CD (AD/HD + ODD/CD). Alasdair and Luk (2000), in a review on AD/HD advancements, reported that responses to stimulant medication are "no different between children with AD/HD alone and AD/HD + ODD/CD (p. 721).

It has been suggested by Barkley (1998) that AD/HD symptoms may intensify comorbid CD symptoms and by reducing the AD/HD behaviours with medication, there may be a concomitant reduction in the CD behaviors. This being the case, one would not expect to see AD/HD + ODD/CD treated/managed any differently than AD/HD alone. In accordance with Van Pragg's (1996) explanations on comorbidity, targeting the symptoms associated with the primary syndrome (AD/HD) should also have a remedial effect on the derivative syndromes (ODD/CD).

The foregoing literature review is meant to accentuate the multitude of links between AD/HD, ODD, and/or CD. These commonalities which include high rates of comorbidity, overlapping symptoms, etiological similarities, and remedial connections, all support the belief that these disorders have a common biological origin which is often corrected with a medically based intervention. To further support this position, the writer conducted a local survey to determine if community practices correlate with the research findings which have been presented in this literature review. Based on the thesis' objectives and the data which the writer has provided in support of these objectives, the following research questions were formulated for this survey:

1. Is medication, either alone or in combination with another intervention, the most effective way to treat/manage AD/HD?

2. Is medication, either alone or in combination with another intervention, also effective to treat/manage ODD/CD?

3. Is AD/HD comorbid with either ODD or CD treated/managed any differently than AD/HD alone?

4. Is mono-therapy (in particular, medication alone) effective in treating both pure and comorbid cases of AD/HD, ODD, and CD?

It is expected that each question will receive varying degrees of support, however, in the case of research questions 2 and 4, it is not necessary to provide conclusive evidence but rather some evidence that these practices are occurring in the community. Given that medication, particularly alone, is not the 'gold standard' in the treatment of ODD and CD, to find any evidence of either would be quite enlightening. Similarly, the thought of AD/HD comorbid with ODD/CD being treated solely with medication seems almost inconceivable given the seriousness of the diagnosis, although it would be consistent with recent developments in this area.

These research questions, if supported by the survey results, will reinforce Van Pragg's hypothesis that comorbid disorders constitute a diagnostic basin characterized with a biologically-based etiology and core symptomotology, hence the development of homogenous primary and secondary syndromes. This in turn will give further credence to the argument that AD/HD, ODD, and CD may be different labels for the same disorder which would explain why they are so highly comorbid and medication responsive. Studies like this one, may cause us to reconsider our current classification system and treatment initiatives for DBD's, and accordingly, make some meaningful changes.

CHAPTER 3

METHODOLOGY

An Overview of the Research Design

To address the research questions presented in chapter 2 (page 30), the writer conducted a cross-sectional survey of community practitioners who treat/manage school-age children (ages 6 - 17 years) with disruptive behavioral problems. A questionnaire was designed and then pretested with a small sample similar to the potential respondents. Following the pilot project, three agencies in Edmonton were invited to participate in the study. The agencies selected constituted a purposive sample; staff participation was voluntary and everyone was given the opportunity to take part in the study. The responses were then tallied, in terms of frequency counts and percentages, on crossbreak tables for a descriptive analysis of treatment patterns. Validity and reliability checks were implemented through a variety of techniques discussed later. The survey results are presented, discussed, and qualified in chapter 4 of this thesis.

Sample Selected for the Study

The total sample ($\underline{N} = 50$) included Bosco Homes for Children (BH: $\underline{n} = 12$), Edmonton Integrated Services (EIS: $\underline{n} = 12$), and McMan Family, Youth, and Community Services (MM: $\underline{n} = 24$). Table 3 provides a comparative analysis of the 50 respondents who participated in the survey in terms of their occupation and frequency of involvement with children who have AD/HD, ODD, and/or CD. This sample consisted of individuals from a wide range of occupations including 26 child care workers, 7 group home managers, 6 teachers, 3 educational assistants, 3 program supervisors, 2 family therapists,

Table 3

Characteristics of the Respondents (N = 50)

		Agencies (n)			
	Characteristics	BH (12)	EIS (14)	MM (24)	ΣM
Occupation	Teacher / Assistant	50		13	21
(%)	Child / Youth Care Worker	17	79	54	50
	Psychologist	17			6
	Supervisor/Group Home Mgr.	17	21	21	20
	Other			13	4
Intensity	Seldom			4	1
(%)	Often	17	21	12	17
	Frequently	25	21	54	33
	Always	58	57	17	44
	(Unspecified)			(13)	(4)
Duration	Mean	8	7.4	7	7.5
(years)	Mode	4	5	4	4
	Range	2 - 16	1 - 31	2 - 22	1 - 31

Note. Percentages rounded to the nearest hundredth. The *Other* category includes 2 family therapists and 1 night staff. *Intensity* refers to the degree of involvement. *Duration* refers to years of related experience.

2 psychologists, and 1 night staff. The majority of the respondents are employed in residential group homes which are designed to meet the needs of adolescents, ages 13 to 17 years, with behavioral problems.

With respect to experience and expertise in managing children with DBDs, 94% of the total respondents rated their professional involvement with these children as either *often* (17%), *frequent* (33%), or *always* (44%). Related experience ranged from 1 to 31 years with a mean of 7.5 years and a mode of 4 years. Neither the mean nor the mode deviated significantly from one subsample to another. The sample, though quantitatively

weak, is relatively strong from a qualitative perspective given that the majority of the participants have had extensive involvement in treating/managing children with DBDs. It was not expected that the respondents themselves would be representative of the target population but rather that they would possess the necessary information *about* the population under investigation. In this particular study, the children who are being treated/managed for AD/HD, ODD, and/or CD constitute the target population.

Format and Structure of The Questionnaire

The questionnaire, a one double-sided page, consisted of eleven questions which fell into six areas under investigation: 1) method of assessment, 2) most effective intervention, 3) multi-modal interventions versus mono-therapy, 4) role of medication, 5) role of attitude, and 6) respondent characteristics. Each question, except #7 and #8, was linked to the research topics of this study; questions #7 and #8 were primarily exploratory and may serve as a catalyst for future research initiatives.

Questions #1, #3, and #8 incorporate nominal scales of measurement whereas questions #4, #5, #6, #7, and #11 consist of ordinal scales of measurement. The latter questions provide a selection of descriptive responses (*never*, *seldom*, *often*, *frequently*, and *always*). The tallies or frequency counts related to these responses were ultimately converted into numerical measurements allowing for a quantitative analysis of this data. Question #2 is a multiple choice item involving several categorical variables on both axes. Questions #9 and #10, which are close ended, require definitive non-obtrusive data on the respondents themselves. The questionnaire was formatted with a Word Perfect software program (version 7.0).

Method of Assessment (Question #1):

This question asks the respondents to indicate whether the children they treat have been diagnosed according to the criteria found in either the DSM-IV or DSM-IV-TR. It is imperative in a study of this nature to maintain continuity in the method of assessment by ensuring that the criteria used to diagnose AD/HD, ODD, and CD is relatively consistent from one agency to another or from one respondent to another. As the DSM is central to the arguments presented in this thesis, it is imperative that any survey or research efforts correspond with this diagnostic manual.

For example, dimensional classifications systems often utilize rating scales to identify problematic behaviors, while categorical systems, like the DSM-IV-TR, identify syndromes. Although the former system may be helpful to identify problematic behaviors, these two systems are fundamentally different and to blend the two in a survey would constitute a potential threat to the internal validity of the data. By including this question regarding assessment, the writer can determine what classification system is being used by the respondents. The usage of a singular categorically based classification system, the DSM-IV or DSM-IV-TR, will strengthen the validity of the findings.

Most Effective Intervention (Question #2)

This particular question identifies six of the most common interventions which are currently being used to treat AD/HD, ODD, and/or CD. They are coded as follows: 1) C = cognitive therapy, 2) B = behavioral therapy, 3) M = medication management, 4) N = neurofeedback training, 5) FT = family therapy, and 6) OTHER = variations of the other categories (i.e., C + B). The intent of this question was to have the respondents choose only one of the options, the one however, which they consider to be the most

effective intervention for AD/HD, ODD, and/or CD.

The wording of this question allows the respondent to draw upon the totality of his/her experience rather than be limited by the dictates of their present employer. For example, a newly appointed teacher at BH could have several years prior experience treating AD/HD with behavioural therapy but may now be required by a new employer to conform to cognitive therapy. Alternately, a child care worker may not be personally administering medication to a child but may be aware that this is occurring. This strategy helps to eliminate or substantially reduce extraneous variables. In essence, respondents are asked to report on what they have found (past and present) to be effective not necessarily what they currently do (present only).

The primary purpose of question #2 was to determine if community workers have found that medication, either alone or in conjunction with another intervention, is the most effective way to treat or manage DBDs. A secondary purpose and one that is not apparent to the respondent was to determine if a *mono-therapeutic* approach was considered more effective than a *multi-modal* approach. The choices, C, B, M, N, and FT are all reflective of one intervention or mono-therapy. The 'OTHER' category, which includes combinations of C, B, M, N, and FT (i.e., M + B), is reflective of multi-modal approaches. This strategy allows the writer to compare responses on related questions.

Multi-Modal Interventions versus Mono-Therapy (Questions #3 to #5)

Given that multi-dimensional approaches to treatment are considered the 'gold standard' for managing DBDs, it was anticipated that the majority of the responses on these three questions would favor a multi-modal approach. However, the purpose of these questions was to determine *to* what degree mono-therapy and multi-modal interventions

are considered effective for pure *and* comorbid cases of AD/HD, ODD, and CD. In addition, because of the content similarity in questions #3, #4, and #5, the writer is able to compare responses between these questions for reliability and validity which will be discussed in greater detail later on.

The responses to questions #4 and #5 may also provide some information relating to *respondent bias.* Given that multi-modal interventions have been popularized in practice, education, and research, most practitioners will likely be of the *belief* that this is the most effective way to treat children with DBDs. However, *practice* does not always conform to belief. The wording of question #2 draws upon professional findings obtained through years of experience, '*What have you found to be most effective*', compared to question #3, *'Are multi-modal interventions more effective than mono-therapy'*, which requires more of an opinion or academically derived response. Although the distinction is subtle, the responses may provide some interesting data.

The Role of Medication (Question #6)

This question, which requires a rating, is intended to achieve a two fold purpose. First, to directly assess respondent biases; in this case, for or against *the use of medication* in the treatment of DBDs. A strong dislike or lack of support for medication on question #6 could affect how someone responded to question #2. For example, if a childcare worker had a strong aversion towards the use of medication for AD/HD then there is a strong possibility that they would not choose medication as the most effective treatment for DBDs even though this could be the most effective intervention. There is a contingency in the community who believe that children with mental disorders are over medicated. While this may be true for some children, it is not necessarily true for all

children. The second purpose of this question, like many of the others, is to do cross checks with related questions on the questionnaire which ask for similar information to determine the degree to which the results are both valid and reliable.

Characteristics of the Respondents (Questions #9 to #11)

The final three questions were designed to assess the strength of the respondents' experience concerning the treatment and/or management of children with DBDs. There are two important variables to consider in this regard - *duration* and *intensity*. Duration refers to the number of years a practitioner has had professional involvement with these children and intensity refers to the frequency of interaction (i.e. seldom, always, etc.) he/she has had with the children. In a quality survey, a researcher would hope to find participants who are both knowledgeable and experienced in the area under investigation. This feature should enhance both the validity and the reliability of the findings.

Research Procedures

Pilot Study

A trial questionnaire (Appendix IV) was piloted at the Woodside School Program in Edmonton under the direction of a vice-principal. This location was chosen because the majority of the student population, which included approximately 60 full time students, had been diagnosed with AD/HD, ODD, and/or CD. As well, the teachers had received training in the administration of prescribed medication. Out of 12 possible participants, 6 (teachers) agreed to complete the questionnaire.

Based on the responses, it was found that some of the questions were poorly worded resulting in some confusion on the part of the respondents' role. For example,

question #1 read, "*Do you use the DSM-IV or DSM-IV-TR criteria to make a diagnosis?*" Four of the teachers indicated that they were not qualified psychologists/psychiatrists and therefore, could not answer the question. The question was revised as follows, "*Have the children you treat/manage been diagnosed according to the diagnostic criteria found in either the DSM-IV or DSM-IV-TR?*" This change in the wording allowed a respondent to comment on what they know rather than what they do or don't do as an employee.

Question #2 also required some changes in the format as the intent was to have the respondent select only *one* intervention, per line, as being the most effective. Instead, five teachers checked off two or more boxes in each line making it difficult to interpret their response. In the revised questionnaire, highly visible and decorative information boxes were added to convey instructions more effectively. This modification worked well as there were very few in the final sample who made the same mistake.

Questions #3 to #5 were answered without any difficulties, however, questions #6 and #7, relating to client *attitude,* were ambiguous and a source of confusion to almost all of the respondents. These questions contained both a nominal (dichotomous) scale and an ordinal (rating) scale in the response selection. In the revised version, the ordinal scale was removed entirely from one question and the nominal scale was eliminated from the other question. This problem did not resurface in the final sample.

The final version of the questionnaire also includes one additional question not on the original version, which relates to the degree in which a respondent supports the use of medication. As the intent of the survey was to examine treatment patterns for DBDs, and in particular the use of medication, this question was inserted to identify respondents aversive to the use of medication in the management of these disorders.

Of particular significance in the original questionnaire, was the inclusion of seven possible diagnoses, two of which were ODD + CD, and AD/HD + ODD + CD. As neither of these are considered to be a valid diagnosis, according to the DSM-IV-TR, both were removed. For pragmatic reasons, the revised questionnaire was not piloted although this would have been a desriable course of action. However, the fact that the majority of the participants in the study understood all of the questions and were able to complete them without any significant errors relating to the format, suggests that the questionnaire is satisfactory.

Main Project

With respect to the overall procedures, all of the agencies who participated in main study were contacted, either in person or by telephone, and made aware of the purpose, ethical guidelines, and authoritative contacts pertaining to the study. These conversations were accompanied by covering letters (Appendix VI) which provided the same information in written form. All of the agencies had an administrative official who assumed the responsibility of distributing and collecting the questionnaires.

Each agency official was given 50 questionnaires which was comparable to the number of employees in each agency. Once the completed questionnaires were returned to the designated officials, the questionnaire were sealed and stored in large 8' x 14' envelopes which the writer had provided earlier. The sealed envelopes were retrieved by the writer approximately one month later and they have remained solely in his possession until the present time. Of the 150 total questionnaires which were given to the agencies, 50 *completed* questionnaires, or 33%, were retrieved for data analysis.

Given that one agency (BH) only provided 12 completed questionnaires and

another (MM) had returned 24, it became necessary to control for agency biases (i.e, towards a particular intervention such as behavioural therapy). The writer equalized the samples by converting the tallies from each subsample to percentages (%) within that subsample rather than percentages of the entire sample. These percentages were compared against each other and then totaled to provide an accurate cumulative means of the total sample; one which was not skewed by agency biases, hence a more equitable representation of community practices.

With the completed questionnaires in hand, the writer began the arduous task of creating tables in which to record the frequency counts which corresponded which the various responses provided in the questionnaires. A separate table was created for each question in which the responses were first tallied and then converted to percentages. The tables incorporated both the subsample and total responses for each question. Once the the tables were in place, the results were then analyzed using a variety of descriptive statistical techniques including bar graphs, scatterplots, correlation coefficients, and the calculation of means, modes and medians. However, for practical reasons, the writer had to "pick and choose" that which would best represent the results and address the research questions. Consequently, only a small fraction of the tables which were created have actually been included in this paper.

Reliability and Validity

Prior to the pilot study, the content validity of the questionnaire was established by having Dr. Henry Janzen (Director of Clinical Services, Department of Educational Psychology, Faculty of Education, University of Alberta) examine the document. Dr. Janzen is highly qualified in the area of child psychology and assessment procedures. It

was his impression that the questionnaire was a workable instrument and could reasonably be expected to effectively measure the variables under investigation. In order to test the construct validity, that is the degree to which the questionnaire actually did measure these variables, it was pretested at a location similar to the ones chosen for the final sample. As a result of the pilot project, the writer was able to identify flaws in the format, and make the necessary changes to improve the reliability of this instrument

Many of the questions on the questionnaire ask for the same or similar data, however, the questions differ in text, structure, and meaning. For example, questions #4 and #5 ask the respondents to rate the effectiveness of mono-therapeutic interventions and multi-modal interventions, respectively, for pure and comorbid cases of DBDs. The responses for these two questions should "dove-tail" each other if the responses are both valid and reliable. Hypothetically, if 80% of the respondents considered multi-modal interventions to be the best approach to treating AD/HD, then it logically follows that the remaining 20% would consider mono-therapy to be the best approach to treating AD/HD. The figure of 80% +/- would be derived from the responses to question #4 and the figure of 20% +/- would be derived from the responses to question #5.

Another example of this type of checks and balances is found in the responses to questions #2 and #6; the logistics are somewhat more complex as illustrated in the following procedure. Question #2 asks for the respondents to identify the most effective treatment for pure and comorbid DBDs. Some of these responses will include medication alone (M) while others will include medication plus another intervention (i.e., M + B); as specified under the 'OTHER' option in question#2. By adding these figures together, the writer can determine the number and/or percentage of respondents who have chosen

medication, either alone or in conjunction with another intervention, to be the most effective way to manage AD/HD, ODD, and/or CD. Question #6, on the other hand, asks the respondents to rate the degree to which they support the use of medication in the treatment of DBDs. When the responses to question #6 are converted to percentages reflecting those who are *supportive* of the use of medication, these percentages should bear some similarity to the percentages found in question #2, *if* the responses are valid and reliable.

In order to separate those who were supportive from those who were not supportive of the use of medication, the writer divided the response ratings (never [N], seldom [S], often [O], frequently [F], and always [A]) according to inherent nature of the rating; *never* and *seldom* were viewed as non-supportive, whereas *often*, *frequently*, and *always* were interpreted as supportive.

To insure accuracy in the tally counts, or rather *internal consistency*, each count was done three times by the writer and then once by an assistant (his wife). In this manner, the frequency counts were checked and rechecked for errors and discrepancies. Given the amount of data which was gleaned from each question on 50 questionnaires, this was a time consuming and grueling experience which lasted several weeks.

CHAPTER 4

RESULTS AND CONCLUSIONS

Preliminary Observations and Findings

With respect to the method of assessment, 68% of the total respondents indicated that the children they treat/manage were diagnosed according to the criteria found in either the DSM-IV or DSM-IV-TR. Of the remaining 32%, 14% were unsure and 18% omitted the question entirely. It is difficult to ascertain why a significant percentage of the respondents failed to respond to this question. It may be speculated that these individuals may have simply overlooked the question because of its proximity to the instructions at the beginning of the questionnaire, or perhaps they did not understand the question and accordingly left it blank. In any event, none of the participants' responses suggest that an alternate classification system is being used in any of the agencies to diagnose DBD's.

Table 4, which is two pages in length, incorporates a vast amount of data and a significant number of variables which were derived from question #2 on the questionnaire (Gist: *Which one of the following interventions have you found to be the most effective in the treatment or management of AD/HD, ODD, and/or CD?*). Table 4 is the chief cornerstone of the entire study from which most of the remaining tables, figures, graphs, etc. are derived or balanced for validity, reliability, inferences, and data analysis. It is is included in the body of this thesis for easy reference.

It is important to note that the percentages reported in Table 4 do not represent the *degree of effectiveness* of any particular intervention for AD/HD, ODD, and/or CD. These percentages are reflective of the frequency count *or number of respondents* who selected a particular intervention as being the most effective for the disorder(s) in question. For

example, in Table 4, under the column 'M' for medication, a percentage of 25 is reported for BH with respect to AD/HD. This means that 25% of the respondents from BH felt that medication is the most effective treatment for AD/HD. It does *not* mean that medication is the most effective intervention for AD/HD 25% of the time. This interpretation applies to all of the data and inferences which are presented.

In terms of preliminary findings, the highlighted portions of Table 4 reflect some prevalent patterns which were observed consistently across all of the subsamples. For example, the majority of the total respondents (mean of 52%) consider mono-therapy to be more effective for pure cases of DBDs and multi-modal interventions (mean of 65%) to be more effective for the comorbid expressions of these disorders. This pattern is also observed within subsamples although to varying degrees. From a statistical standpoint, similar response patterns from three different subsamples (agencies), reinforces the probability that the information derived from question #2 is both truthful and consistent.

Many of the percentages recorded in Table 4 are seemingly insignificant from a statistical perspective. For example, in the 'Total' response section on the second page of Table 4, there are several combined interventions, such as M+ C (medication + cognitive therapy), in which only 1% of the respondents adjudged it to be the most effective way to treat AD/HD. Similarly, M + N (neurofeedback) is 3%; M + FT (family therapy) is 5%; M + FT + B (behavioral therapy) is 1%; M + B + C + FT is 2%, and M + B + C + N + FT is 3%. Alone, these figures are meaningless, however, together, under the heading M+ (medication combined with another intervention), they take on greater importance. When their aggregate value (15%) is amalgamated with more significant M+ responses such as M + B (24%) and M + B + C (18%), the cumulative total of 57% for M+ is considerable

more meaningful.

Not all of the information provided in Table 4 is relevant to this paper, however, the data has been included in the table to account for all of the responses, and to provide the reader with an awareness of the range of intervention strategies which are currently being used in the local community to treat/manage DBDs. There are numerous opinions on how to manage these disorders some of which are evidently more popular than others. The remainder of this chapter will be devoted to an examination of the survey results to determine the degree to which the findings either refute or support the four research questions introduced by the writer in the literature review.

Table 4

The Most Effective Intervention for DBDs: Subsample Comparisons (%)

AGENCY / CONDITION	MONO-THERAPY						MULTI-MODAL INTERVENTIONS (the 'OTHER' option)																(UN)
	C	B	M	N	FT	Total	MB	MC	MN	MFT	MBC	MBN	MBFT	MBCN	MBCFT	MBCNFT	BC	BFT	BCN	BCFT	BFTN	Total	
BH (n = 12)																							
AD/HD		8	25			33	8		8	8	17					8	8					58	(8)
ODD	8	50				58	8			8	8					8						33	(8)
CD		42	25			67	8				8					8						25	(8)
ΣM =	3	33	17			53	8		3	5	11					8	3					39	(8)
AD/HD + ODD		8	25			33	17			8	17					17						59	(8)
AD/HD + CD		8	25			33	17			8	8					17		8				59	(8)
ΣM =		8	25			33	17			8	12					17		4				59	(8)
EIS (n = 14)																							
AD/HD		7	14			21	43				29				7							79	
ODD		21	14			35	29				29									7		65	
CD		21	21	7		49	43													7		50	
ΣM =		17	17	2		36	38				19				2					5		64	
AD/HD + ODD			14			14	43				29		7		7							86	
AD/HD + CD			7	7		14	43				29		7		7							86	
ΣM =			10	4		14	43				29		7		7							86	

.....continuation of Table 4 (intervention codes reinserted for convenience)

	C	B	M	N	FT	Total	MB	MC	MN	MFT	MBC	MBN	MBFT	MBCN	MBCFT	MBCNFT	BC	BFT	BCN	BCFT	BFTN	Total	(Un)
MM (n = 24)																							
AD/HD	8	29	8		4	50	21	4		8	8		4					4				50	
ODD	4	58			13	75	8						4				4				4	21	(4)
CD	8	58			13	79	8				4		4						4			21	
ΣM =	7	49	3		10	68	13	1		3	4		4				1	1	1		1	31	1
AD/HD + ODD	4	29			13	46	17				4	13	4	4			4					46	(8)
AD/HD + CD	8	21			13	42	29					4	8				8					49	(8)
ΣM =	6	25			13	44	23				2	8	6	2			6					48	(8)
Total (N = 50)																							
AD/HD	3	15	16		1	35	24	1	3	5	18		1		2	3	3	1				62	(3)
ODD	4	43	5		4	56	15			3	12		1			3	1			2	1	40	(4)
CD	3	40	15	2	4	65	20				4		1			3			1	2		32	(3)
ΣM =	3	33	12	1	3	52	20	0	1	3	11		1		1	3	1	0	0	1	0	45	(3)
AD/HD + ODD	1	12	13		4	31	26			3	17	4	4	1	2	7						64	(5)
AD/HD + CD	3	10	11	2	4	30	27			3	12	1	5		2	9		3	2	2		65	(5)
ΣM =	2	11	12	1	4	30	28			3	15	3	4	0	2	8		1	1	1		65	(5)

Note. Percentages rounded to the nearest hundredth. C = Cognitive, B = Behavioral, M = Medication, N = Neurofeedback, FT = Family Therapy, UN = Unsure

Research Question 1

"Is medication, either alone or in combination with another treatment, the most effective way to treat/manage AD/HD?" From this point onward, *medication alone* will be abbreviated as MA, and *medication combined with another intervention* will be designated as M+. Tables 5 and 6, which are derived from response to questions #2 and #6 on the questionnaire, differ in structure but contain similar content which will be used to address the first research question. Table 5 includes the percentage of respondents from each agency who have found medication management to be the most effective treatment for AD/HD. Table 6 includes the percentage of respondents from each agency who support the use of medication in the management of this disorder. Tables 5 and 6 are compared to establish the validity and reliability of the responses to questions #2 and #6, respectively, on the questionnaire.

Table 5 indicates that 73% (ΣM) of the total respondents have found medication management to be the most effective way to treat/manage AD/HD. The frequency of this by BH at 74%, and finally MM at 53%. It is important to note that *all* of the agencies

Table 5

Medication Management in the Treatment of AD/HD

			Medication Management (%)		
Agency	n	Condition	Medication Alone	Medication Plus	Total
BH	12	AD/HD	25	49	74
EIS	14	AD/HD	14	79	93
MM	24	AD/HD	8	45	53
		$\Sigma M =$	16	57	73

Note. Percentages rounded to the nearest hundredth. *Medication plus* (M+) is defined as medication combined *with* another intervention *Medication alone* (MA) is defined as medication *without* another intervention

response varied considerably from one subsample to another with EIS at 93%, followed reported that M+ was significantly more effective than MA in the treatment of AD/HD; of the total respondents (ΣM), 57% specified M+ whereas only 16% selected MA.

The responses recorded in Table 5 bear some similarity to the responses cited in Table 6. In both tables, the BH and EIS respondents demonstrated a stronger response pattern than the MM respondents in favor of medication management. This is consistent with Table 4 which reflects that 33% of the MM respondents picked behavioral therapy as the most effective treatment for AD/HD compared to 16% of the BH respondents and and 7% of the EIS respondents. Seemingly, attitudes towards the use of medication vary considerably in the community with some agencies being more averse than others. It is interesting to note that in Table 6, the BH respondents expressed 92% support for the use of medication compared to 79% of the EIS respondents, and in Table 5 these figures were reversed; 93% of the EIS respondents reported that medication management was the most

Table 6

Degree (%) of Support for Medication in the Treatment of AD/HD

		Non-supportive		Supportive				
Agency	n	N	S	O	F	A	Total	UN
BH	12		8	25	42	25	92	
EIS	14		21	50	29		79	
MM	24	4	29	33	25	8	66	
	ΣM =	1	19	36	32	11	79	

Note. Percentages rounded to the nearest hundredth. N = never, S = seldom, O = often, F = frequently, A = always, and UN = unsure. The *non-supportive* category include the respondents who *are not* in favor of the use of medication in the treatment of AD/HD. The *supportive* columns includes the respondents who *are* in favor of the use of medication for AD/HD.

effective intervention for AD/HD compared to 74% of the BH respondents. Although there is some disparity within subsamples, the cumulative means ($\Sigma\underline{M}$) for both tables actually varied very little with Table 5 at 73% and Table 6 at 79%; a standard deviation (SD) of 2.5. This suggests that both questions were understood and responded to in like manner reinforcing the reliability and validity of the data.

In response to research question 1, the foregoing evidence would suggest that medication management is considered by the majority of the respondents to be the most effective intervention for AD/HD. Behavioral therapy (without the benefit of medication), the second most popular intervention for AD/HD, accounted for only 19% of the total responses. This also suggests that AD/HD may have a biologically-based antecedent which is medication responsive. This inference is consistent with the APA's (2000) claim that the core symptoms of AD/HD are strongly influenced by genetic factors.

Research Question 2

"Is medication, either alone or in combination with another treatment, also being effectively used to treat/manage ODD and CD?" To answer this question, the writer utilized the same procedural technique which was used to address the first research question. Table 7 includes the percentage of respondents from each agency who have *found* medication management to be the most effective treatment for ODD and CD. Table 8 includes the percentage of respondents from each agency who *support* the use of medication in the management of these disorders. Tables 5 and 6 are compared to reinforce the validity and reliability of the responses to questions #2 and #6, respectively.

The findings in Table 7 reveal that MA and M+ are considered by some, from all three agencies, to be the most effective intervention in the treatment of both ODD and

Table 7

Medication Management in the Treatment of ODD and CD

Agency	n	Condition		Medication Management (%)		
				Medication Alone	Medication Plus	Total
BH	12	ODD			32	32
EIS	14	ODD		14	58	72
MM	24	ODD			12	12
			ΣM =	5	34	39
BH	12	CD		25	24	49
EIS	14	CD		21	43	64
MM	24	CD			16	16
			ΣM =	15	28	43

Note. Percentages rounded to the nearest hundredth. *Medication plus* (M+) is defined as medication combined *with* another intervention *Medication alone* (MA) is defined as medication *without* another intervention.

CD. This is particularly noticeable with the EIS respondents - 72% and 64% reported that medication management was the optimum treatment for ODD and CD, respectively. The BH respondents shared similar sentiments but to a lesser degree, with a response rate of 32% for ODD and 49% for CD. The response rates, although significantly lower with the MM respondents (12% for ODD and 16% for CD), demonstrate that even a conservative agency has some staff who consider medication management to be the best intervention for ODD and CD.

In comparing the cumulative mean (ΣM) for ODD at 39% to that of CD at 43%, there appears to be nominal differences in the response rates. This would indicate that most of the respondents did not differentiate between these two disorders with respect to medication management. It is noted that these percentages are substantially lower than

those which were reported for AD/HD on the same criterion, however, this was anticipated by the writer. The goal of this exercise was to *not* to prove that ODD and CD are treated in the same manner as AD/HD but rather to provide *some* evidence that MA or M+ are being effectively used in the community by some practitioners to manage these two disorders. As noted earlier, ODD and CD have not generally been considered *medication responsive* and both disorders are thought to have a strong environmentally-based etiology (Alasdair et al., 2000).

Consistent with the findings on AD/HD, all of the agencies reported that M+ was significantly more effective than MA in the treatment of ODD and CD. In addition, BH is again the forerunner with regards to *degree of support* for the use of medication in the

Table 8

Degree (%) of Support for Medication in the Treatment of ODD and CD

			Non-supportive		Supportive				
Agency	n	Condition	N	S	O	F	A	Total	UN
BH	12	ODD		8	50	33	8	92	
EIS	14	ODD		36	50	14		64	
MM	24	ODD	13	46	21	13	4	38	(4)
		ΣM =	4	30	40	20	4	65	(1)
BH	12	CD		8	50	33	8	92	
EIS	14	CD		43	36	21		57	
MM	24	CD	17	38	13	25		38	(8)
		ΣM =	6	30	33	26	3	62	(3)

Note. Percentages rounded to the nearest hundredth. N = never, S = seldom, O = often, F = frequently, A = always, and UN = unsure. The *non-supportive* category include the respondents who *are not* in favor of the use of medication in the treatment of ODD/CD. The *supportive* columns includes the respondents who *are* in favor of the use of medication for ODD/CD.

treatment of ODD and CD, followed by EIS, and finally, MM. Of some interest is the fact that all three subsamples demonstrated stronger responses in terms of support (question #6 on the questionnaire) in comparison to their findings (question #2 on the questionnaire). For example, the responses in Table 7 ($\Sigma\underline{M}$) reflect that 39% and 43% of the total respondents have *found* medication management to be the most effective intervention for ODD and CD, respectively, whereas 65% and 62% of the respective respondents expressed *support* for the use of medication in the treatment of these two disorders. This response pattern was observed in all of the subsamples, especially the MM respondents - 12% and 16% of the respective respondents specified that medication management was the most effective intervention for ODD and CD (Table 7), respectively, whereas 38% of the MM respondents, were supportive of the use of medication to manage ODD/CD (Table 8). Hence, there is some evidence which suggests that some of the respondents surveyed would support an increase in the use of medication for ODD and CD, however, this contingency seems to lack first hand experience in this regard.

Behavioral therapy was considered slightly more effective than medication management (45% vs. 41%) for ODD/CD. However, to respond to research question 2, the survey results indicate that both MA and M+ have been used successfully by some practitioners to treat ODD and CD. This suggests that ODD and CD could have a biological determinant which is responsive to medication. To determine if AD/HD, ODD, and CD share the same or a similar organic deficiency, it would be necessary to identify the specific medication which community practitioners have used to treat each of these three disorders. With respect to reliability and validity, the response patterns observed in Table 7 are similar to those found in Table 8. Although the responses differ somewhat

within the subsamples, the overall patterns are the same. BH and EIS continue to display a stronger endorsement of medication management than MM.

Research Question 3

"Is AD/HD comorbid with either ODD or CD treated/managed any differently than AD/HD alone? " Research questions 3 and 4, unlike 1 and 2, incorporate the comorbidity variable. Of course, the common denominator for these three diagnostic possibilities is the presence of AD/HD. In accordance with the objectives of these thesis, the treatment of AD/HD alone and AD/HD comorbid with ODD/CD will be analyzed in regards to medication management. With the inclusion of ODD and CD as aggravating conditions the response rates may be elevated slightly or at the very least, more or less the same. To facilitate this analysis, the writer has created a bar graph (Figure 5) which will allow for a quick and easy pictorial comparison of the responses from all three agencies to question #2 on the questionnaire. Validity and reliability will be established by comparing the responses within subsamples on different diagnostic domains.

According to Figure 6, the BH and EIS respondents report that medication management is equally effective for both AD/HD + *CD*, and pure AD/HD. Some of the BH and EIS respondents (approximately 7% - 10%), reported that medication management is more effective for AD/HD + *ODD* than it is for either AD/HD alone or AD/HD comorbid with CD. In the case of the MM respondents, there is a noticeable decline in the response rates for the comorbid expressions of AD/HD meaning that some respondents (11% - 12%) feel that AD/HD is more deserving of medication management than AD/HD + ODD/CD. Although this may appear significant, these percentages only represent 2 of the 24 MM respondents who completed the questionnaire and therefore, is

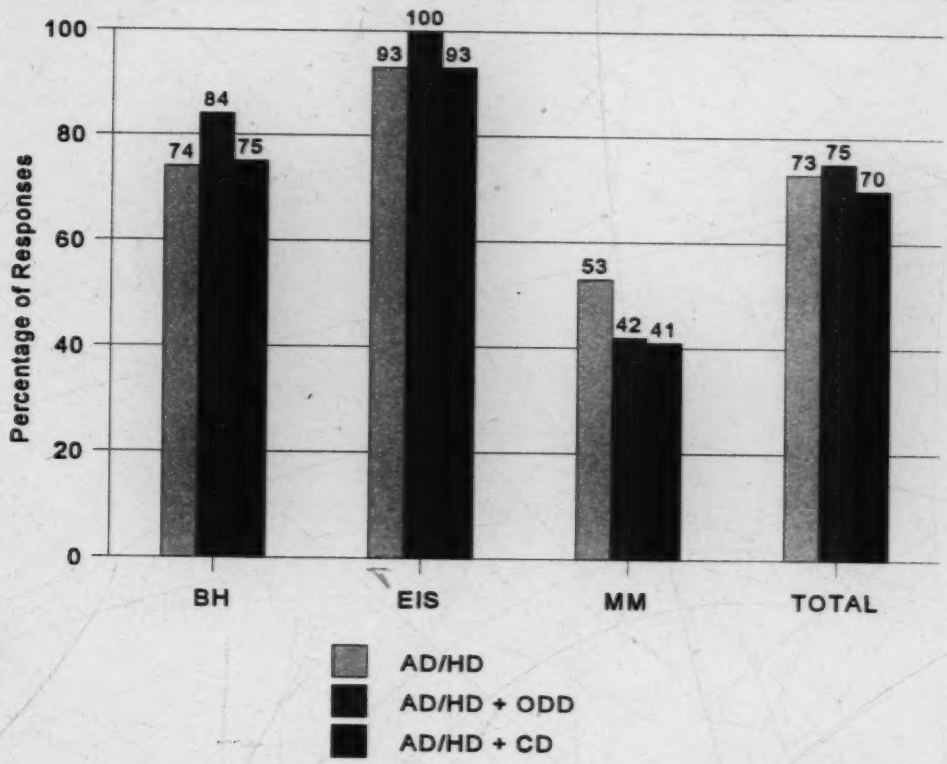

Figure 6. Medication Management for AD/HD and AD/HD + ODD/CD. The bars on this graph represent the respective percentages (of respondents) who have found *medication management* to be the most effective intervention for either AD/HD, AD/HD + ODD, or AD/HD + CD. The data for this graph is from Table 4.

not considered a meaningful deviation.

It is recognized that each of the subsamples endorse the use of medication in varying degrees, however, this pattern is considered a reflection of agency practice not necessarily the efficacy of medication management. What is more significant in Figure 6 and of greater statistical value is the fact that all of the agencies demonstrated the same response patterns *within* subsamples even though the response rates differ *between* subsamples. For example, BH response rates range between 74% and 84% (SD = 4.5), EIS response rates range between 93% and 100% (SD = 3.3), and MM response rates

range between 41% and 53% (SD = 5.4). However, in terms of the total respondents (ΣM), the response rates range from 70% to 75% (SD = 2) which suggests that there is good reliability and validity. It also implies that the majority of the total respondents have found that AD/HD comorbid with either ODD or CD is effectively treated in the same manner as AD/HD alone. If the standard treatment for pure AD/HD is the same as it is for AD/HD + ODD/CD, then it may be implied that all three disorders are being targeted with an intervention which includes the use of medication.

Although Table 4 reflects that multi-modal interventions are considered more effective for comorbid cases of DBDs, 100% of the respondents who provided a multi-modal response for AD/HD + ODD *included* medication (M+) as part of that response, and 89% did the same thing for AD/HD + CD. These response patterns strongly suggest that practitioners believe that medication has an essential role to play in any multi-modal approach which is used to treat/manage DBD comorbidities. Similarly, M+ responses for pure cases of AD/HD, ODD, and CD, accounted for 96%, 90%, and 91%, respectively, of all the multi-modal responses which were cited in the survey. Only 10% (or less) of the multi-modal recommendations for pure DBDs *excluded* the use of medication (i.e., cognitive and behavioural therapy). The vast majority of the respondents recommended multi-modal interventions characterized by M+.

Research Question 4

"Is mono-therapy (in particular, medication alone) effective in treating both pure and comorbid cases of AD/HD, ODD, and CD?" The information required to answer this question has been taken from Table 4, in conjunction with Tables 9, 10, and 11, which have been derived from the responses to questions #2, #4, and #5, respectively,

Table 9

Rating the Effectiveness of *Multi-Modal Interventions* for AD/HD, ODD, and/or CD

	Multi-Modal Interventions						
	Non-effective (%)		Effective (%)				
Condition	N	S	O	F	A	Total	UN
AD/HD		2	26	40	30	96	
ODD		12	32	26	26	84	
CD		18	36	20	22	78	
AD/HD + ODD		8	28	30	30	88	
AD/HD + CD		14	26	26	32	86	

Note. N = never, S = seldom, O = often, F = frequently, A = always, and UN = unsure. The *non-effective* columns include the respondents who believe that multi-modal interventions *are not* very effective for DBDs. The *effective* columns include the respondents who believe that multi-modal interventions *are* effective in the treatment of DBDs.

Table 10

Rating the Effectiveness of *Mono-Therapy* for AD/HD, ODD, and/or CD

	Mono-Therapeutic Interventions						
	Non-effective (%)		Effective (%)				
Condition	N	S	O	F	A	Total	UN
AD/HD	18	58	12	10		22	(2)
ODD	20	56	14	6		20	(4)
CD	26	48	10	10		20	(6)
AD/HD + ODD	28	54	8	8		16	(2)
AD/HD + CD	28	54	10	6		16	(2)

Note. N = never, S = seldom, O = often, F = frequently, A = always, and UN = unsure. The *non-effective* columns include the respondents who believe that mono-therapeutic interventions *are not* very effective for DBDs. The *effective* columns include the respondents who believe that mono-therapeutic interventions *are* effective for DBDs.

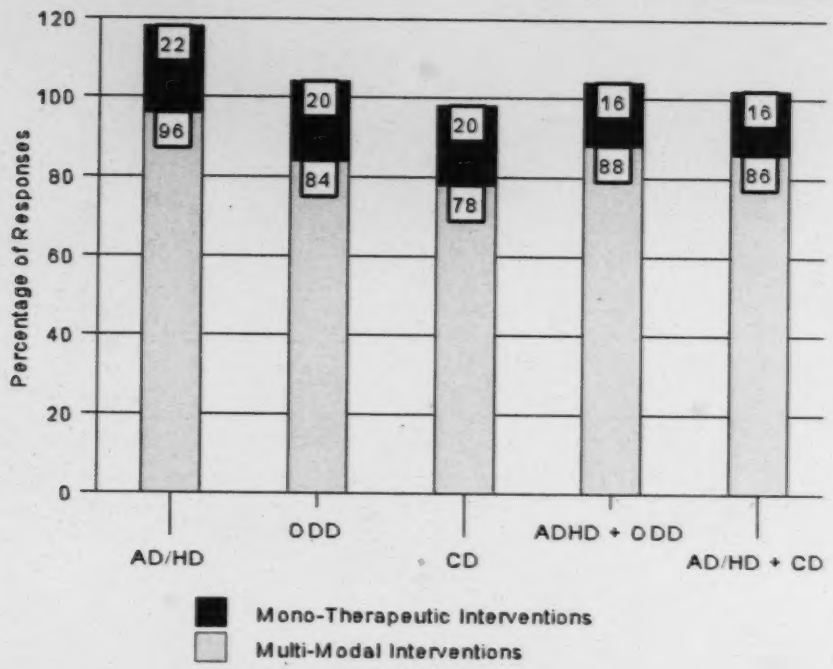

Figure 7. Effectiveness of Mono-Therapy and Multi-Modal Interventions for DBDs. This bar graph represents the respective respondents who consider *mono-therapy* and *multi-modal interventions* to be effective in the treatment of pure and comorbid cases of AD/HD, ODD, and CD. A perfect correlation is reflected at the 100% line on the y axis.

on the questionnaire. Both Table 9 and Table 10 include the ratings on the *effectiveness* of *mono-therapy* and *multi-modal interventions* in the treatment of DBDs. These tables 'dove-tail' each other and by plotting the data from the 'total' columns in both tables on a bar graph (Figure 7) it is a simple task to validate the responses. For example, in regards to AD/HD + CD (Table 9), 86% of the total respondents rated *multi-modal* interventions as being effective. This implies that the remaining 14% disagreed; that 14% should be reflected in Table 10 by those who rated *mono-therapy* as being effective for AD/HD + CD. In actuality, 16% rated mono-therapy as effective for AD/HD + CD, hence there is a 2% overlap suggesting uncertainty on the part of a few respondents or minor invalidity.

Overall, the data in Figure 7 appears to be have good correlative value with the exception perhaps of the response rates for AD/HD; 18% of the respondents seems to have mixed opinions. Multi-modal interventions were rated as being significantly more effective ($\underline{M}$ = 86%; SD = 5.9) than mono-therapy for pure and comorbid DBD cases. In terms of ranking, AD/HD alone and AD/HD + ODD/CD received the highest response rate ranging from 86% to 96%. This suggests that any DBD diagnosis which includes AD/HD may warrant a multi-modal approach. The response rates for mono-therapy are substantially lower ($\underline{M}$ = 19%; SD = 2.4), however, they are also more accurate given that there is less variance in the distribution.

In accordance with research question 4, it is important to know the percentage of respondents who consider MA to be an effective mono-therapeutic response to pure and comorbid cases of AD/HD, ODD, and CD. This has been addressed, in part, through research questions 1 and 2 which considered MA for pure expressions of these disorders, however, *comorbid* conditions were not discussed. Table 11, derived from Table 4,

Table 11

Frequency of Medication Usage in Mono-Therapy (MT) for DBDs

Condition	Percentage of Total Responses for Mono-Therapy		
	other	medication	total
AD/HD	19	16	35
ODD	51	5	56
CD	49	15	64
AD/HD + ODD	17	13	30
AD/HD + CD	19	11	30
$\Sigma\underline{M}$ =	31	12	43

Note. *Other* includes either cognitive, behavioural, neurofeedback, or family therapy.

provides the necessary data. Table 11 reflects that MA is considered the most effective treatment for comorbid manifestations of DBDs by 12% (mean) of the total sample. This figure suggests that some practitioners, albeit a minority, have found that medication need not always be accompanied by another intervention to be effective in the treatment of the more serious diagnoses of AD/HD, ODD, and/or CDs which include comorbidities. Thus to answer research question 4, there is some evidence which indicates that mono-therapy (in particular MA) is used to treat/manage both pure and comorbid cases of DBDs.

Summary of Findings and Overall Conclusions

In summary, the results of this survey reflect that MA and M+ are being used by the majority of community practitioners to treat AD/HD, and to a lesser degree, ODD and CD. Response rates reflect that behavioural interventions for ODD and CD are slightly more popular (mean of 45% compared to a mean of 41%) than medication management in the treatment of these two disorders although the differences are marginal.

However, in regards to the comorbid manifestations of ODD/CD, (i.e., AD/HD + ODD and AD/HD + CD), the mean response rates in favor of behavioural therapy drop significantly from 45% to 15% of the total sample. This suggests that, 1) behavioural therapy is not as effective when AD/HD is present, and 2) the symptoms associated with ODD/CD diminish concurrently with the symptoms of AD/HD when AD/HD is treated with either MA or M+. Both explanations are consistent with the literature in this regard.

If these three disorders share a common core symptomology and a biologically-based etiology, as inferred by the writer's *'additive model of comorbidity pathways'*, it would explain why medication management is considered the preferred course of action when two or more DBDs are diagnosed in one person. Alternately, it is possible that pure

ODD and CD do not share the same correlates as ODD/CD comorbid with AD/HD hence the treatment outcomes for pure and comorbid DBD diagnoses may be different. It is also conceivable that *each* of these three disorders in the comorbid form is characterized with its own unique antecedent, be it biological, environmental, or bio-environmental, which is medication responsive, but which is not, however, shared by the other two. In this regard, the writer acknowledges the limitations of the present study and its theoretical as well as practical value is subject to restrictions.

Limitations of the Study

First, the usage of the terms *never*, *seldom*, *often*, *frequently*, and *always* could have been more clearly defined in the questionnaire. For example, on question #11, in reference to *frequency of involvement,* the term *always* could imply all day or every day. Every day, however, does not necessarily mean a practitioner is involved all day long with these children hence there are *at least* two possible interpretations.

Second, the questionnaire was designed for practitioners who work with children ages 6 to 17 years, however, the majority of the sample population work with children 12 to 17 years of age. How *they* treat/manage these children may be different than *those* who work with children ages 6 to 11 years.

Third, the sample is small and community-based; as such, it is difficult to generalize the results beyond the parameters of the study. For example, would a *larger clinically-based* sample of psychiatrists and/or psychologists yield the same results. These factors restrict the external validity of the inferences.

Fourth, this study does not involve any input from the parents regarding the success, or lack thereof, of the various interventions. It is logical to assume that most

practitioners will endorse *their choice* of intervention as being the most effective in order to justify their actions. To think otherwise would defy any notion of common sense.

Fifth, the questionnaire does not specify the *type* of medication which should be used to treat AD/HD, ODD, and/or CD. Although the writer has indicated in the literature review the *specific* medications which have been effectively used to treat these disorders, the questionnaire does not allow for this variable. Therefore, it is unclear from the survey if the medication used to treat AD/HD, ODD, and CD is the same for all three disorders.

Sixth, separating *fact* from *opinion* is difficult. For example, question #2 required the selection of a *specific* treatment option which, unbeknown to the sample, was also an endorsement of either mono-therapy or a multi-modal strategy. Conversely, questions #4 and #5, required more *general* responses to these two modalities. With respect to CD, in question #2, the percentage of *N* in favor of mono-therapy was 65%; in question #5, it was only 20%. For multi-modal interventions and CD, the figures were 32% (question #2) and 78%(question #4). It is felt that more detailed responses are reflective of actual scenarios (i.e., facts); generalities tend to echo beliefs on a given topic (i.e., opinions).

The seventh and final limitation centers around the response rate of 33% meaning that 66% chose for whatever reason not to participate. However, their reason for not taking part in the survey could have an impact on the data analysis. It is feasible that those who did respond differ from those who did respond with regard to answers to the survey questions. If this true, any conclusions which have been drawn may be misleading and not be a true indication of the views of the population from which the sample was drawn.

Implications for Future Research

Attitude is crucial to change; even children on medication need an *attitude of compliance*. Ironically, 94% of the sample felt that attitude was *more* important than the method of intervention. When asked if any intervention will work with the right attitude, 68% responded in the affirmative. These figures indicate that a significant percentage of the respondents feel that client attitude plays an important role and should be investigated and is deserving of some attention in future studies.

Research on AD/HD, ODD, and CD will continue to be hampered by the lack of conceptual clarity for these disorders. Some children diagnosed with AD/HD simply do not have this disorder and are merely engaging in problematic or age-appropriate behaviors. Similarly, it may be argued that many patients who are diagnosed with CD are more commonly known as 'criminals', who however, conveniently match the criteria established by the APA (2000) in the DSM-IV-TR. This would explain why these DBD clones may be effectively treated with non-medical initiatives.

It is imperative in future research on DBDs to, first and foremost, establish the purity of the syndrome(s) to avoid adding further inconsistencies to what is already a very controversial field of study. Specific to the present study, is the need to conduct more controlled studies which address the 'type of medication' being used and include input from a variety of sources including the children themselves. Perhaps, this is one source which has been overlooked far too frequently in our quest for further light and knowledge on AD/HD, ODD, and CD. .

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APPENDIX I

Diagnostic criteria for Attention-Deficit/Hyperactivity Disorder

A. Either (1) *or* (2):

(1) Six (or more) symptoms of inattention have persisted for at least 6 months:
- (a) often fails to give close attention to details or makes careless mistakes in work or other activities
- (b) often has difficulty sustaining attention in tasks or play activities
- (c) often does not seem to listen when spoken to directly
- (d) often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- (e) often has difficulty organizing tasks and activities
- (f) often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort such as school work or homework
- (g) often loses things necessary for tasks or activities
- (h) is often easily distracted by extraneous stimuli
- (i) is often forgetful in daily activities

(2) Six (or more) symptoms of hyperactivity-impulsivity have persisted for at least 6 months:
- (a) often fidgets with hands or feet or squirms in seat
- (b) often leaves seat in classroom/other situations in which remaining seated is expected
- (c) often runs about or climbs excessively in situations in which it is inappropriate
- (d) often has difficulty playing or engaging in leisure activities quietly
- (e) often "on the go" or acts as if "driven by a motor"
- (f) often talks excessively
- (g) often blurts out answers before questions have been completed
- (h) often has difficulty waiting turn
- (i) often interrupts or intrudes on others

(Adapted from DSM-IV-TR, APA, 2000, pp. 92-93)

APPENDIX II

Diagnostic criteria for Oppositional Defiant Disorder

A pattern of negativistic, hostile and defiant behaviors lasting at least 6 months, during which four (or more) of the following symptoms are present:

(1) often loses temper
(2) often argues with adults
(3) often actively defies or refuses to comply with adults' requests or rules
(4) often deliberately annoys people
(5) often blames others for his or her mistakes or misbehavior
(6) often touchy or easily annoyed by others
(7) often angry and resentful
(8) often spiteful or vindictive

(Adapted from DSM-IV-TR, APA, 2000, p. 102)

APPENDIX III

Diagnostic criteria for Conduct Disorder

A repetitive and persistent pattern of behavior in which the basic rights of others or major age -appropriate societal norms or rules are violated as manifested by the presence of three or more of following criteria in the past 12 months, with at least 1 criterion present in the past 6 months:

(1) often bullies, threatens, or intimidates others
(2) often initiates physical fights
(3) has used a weapon that can cause serious physical harm to others
(4) has been physically cruel to people
(5) has been physically cruel to animals
(6) has stolen while confronting a victim
(7) has forced someone into sexual activity
(8) has deliberately engaged in fire setting with the intention of causing serious damage
(9) has deliberately destroyed others' property (other than by fire setting)
(10) has broken into someone else's house, building, or car
(11) often lies to obtain goods or favors or to avoid obligations
(12) has stolen items of nontrivial value *without* confronting a victim
(13) often stays out at night despite parental prohibitions, beginning before age 13 years
(14) has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
(15) is often truant from school, beginning before age of 13 years

(Adapted from DSM-IV-TR, APA, 2000, p. 99)

APPENDIX IV

Questionnaire: Disruptive Behavior Disorders (AD/HD, ODD and CD) for school age children (6-17)

NOTE: **AD/HD** may be: 1) the **Inattentive** type, 2) the **Impulsive / Hyperactive** type or 3) the **Combined** type - both #1 and #2. This questionnaire applies to those of the **COMBINED TYPE ONLY**. This questionnaire should be completed by staff who are involved in the assessment and/or treatment process (i.e., psychologists, school counselors).

METHOD OF ASSESSMENT:

	YES	NO
1. *Do you use the DSM-IV or DSM-IV-TR criteria to make a diagnosis?*	☐	☐ ☞ 1.1

1.1 *What criteria do you use to make a diagnosis (please specify)?* _____

MOST COMMONLY USED TREATMENTS BY PRACTITIONERS:

NOTE: Check only 1 box per line. **CODING:** **C** = Cognitive, **B** = Behavioral, **M** = Medication, **N** = Neurofeedback, **FT** = Family Therapy. The **OTHER** category includes variations of the above (i.e., C + B = Cognitive and Behavioral).

2. *Which of the following interventions do you use **most frequently** in the treatment of* ☞ 2.1

	C	B	M	N	FT	OTHER (please specify)
2.1 AD/HD	☐	☐	☐	☐	☐	☐ _____
2.2 ODD	☐	☐	☐	☐	☐	☐ _____
2.3 CD.....	☐	☐	☐	☐	☐	☐ _____
2.4 AD/HD + ODD	☐	☐	☐	☐	☐	☐ _____
2.5 AD/HD + CD	☐	☐	☐	☐	☐	☐ _____
2.6 AD/HD + ODD + CD.	☐	☐	☐	☐	☐	☐ _____
2.7 ODD + CD	☐	☐	☐	☐	☐	☐ _____

EFFECTIVENESS OF TREATMENT INITIATIVES:

NOTE: An example of **mono-therapy** is medication (i.e., ritalin) alone, **without** the added benefit of behavioral, family and/or cognitive therapy. An example of **a multi-modal** strategy is medication **with** *another* treatment initiative.

3. *Are **multi-modal** interventions **more** effective than **mono-therapy** in treating* ☞ 3.1

	YES	NO	UNSURE	
3.1 AD/HD	☐	☐	☐	
3.2 ODD	☐	☐	☐	
3.3 CD.....	☐	☐	☐	
3.4 AD/HD + ODD	☐	☐	☐	
3.5 AD/HD + CD	☐	☐	☐	
3.6 AD/HD + ODD + CD.	☐	☐	☐	
3.7 ODD + CD	☐	☐	☐	☞ OVER

RATING THE EFFECTIVENESS OF TREATMENT STRATEGIES:

NOTE: CODING: N = never S = seldom O = often F = frequently A = always.

4. ***How effective*** *would you rate* ***multi-modal*** *interventions in treating* ☞ **4.1**

	N	S	O	F	A	UNSURE
4.1 AD/HD	☐	☐	☐	☐	☐	☐
4.2 ODD	☐	☐	☐	☐	☐	☐
4.3 CD.....	☐	☐	☐	☐	☐	☐
4.4 AD/HD + ODD	☐	☐	☐	☐	☐	☐
4.5 AD/HD + CD	☐	☐	☐	☐	☐	☐
4.6 AD/HD + ODD + CD.	☐	☐	☐	☐	☐	☐
4.7 ODD + CD	☐	☐	☐	☐	☐	☐

5. ***How effective*** *would you rate* ***mono-therapeutic*** *interventions in treating* ☞ **5.1**

	N	S	O	F	A	UNSURE
5.1 AD/HD	☐	☐	☐	☐	☐	☐
5.2 ODD	☐	☐	☐	☐	☐	☐
5.3 CD.....	☐	☐	☐	☐	☐	☐
5.4 AD/HD + ODD	☐	☐	☐	☐	☐	☐
5.5 AD/HD + CD	☐	☐	☐	☐	☐	☐
5.6 AD/HD + ODD + CD.	☐	☐	☐	☐	☐	☐
5.7 ODD + CD	☐	☐	☐	☐	☐	☐

ROLE OF ATTITUDE:

6. ***Is attitude*** *(willingness or desire to change), on the part of the child,* ***more*** *important than the method* ***of intervention*** *in attempting to correct disruptive behavioral problems?*

YES /	NO		N	S	O	F	A	UNSURE
☐☞ **6.1**	☐	**6.1**	☐	☐	☐	☐	☐	☐

7. ***With the right attitude, will any intervention (multi-modal or mono-therapy) be effective?***

YES	NO		N	S	O	F	A	UNSURE
☐☞ **7.1**	☐	**7.1**	☐	☐	☐	☐	☐	☐

PERSONAL INFORMATION:

8. *What is your occupation* _____ *?*

8. *Years of experience treating disruptive behavior disorders* _____ *?*

9. *Frequency* **(N, S, O, F, A)** *of treating disruptive behavior disorders* _____ *?*

10. *Comments:* _____

Thank you for your cooperation in filling out this questionnaire. **END**

APPENDIX V

Questionnaire on Disruptive Behavior Disorders (AD/HD, ODD and CD) for school age children (6-17)

NOTE: AD/HD may be: 1) the **Inattentive** type, 2) the **Impulsive / Hyperactive** type or 3) the **Combined** type - both 1) and 2). This questionnaire applies to those of the **COMBINED TYPE ONLY**. It should be completed by staff who are involved in the assessment, treatment and/or management of children with AD/HD, ODD (Oppositional-Defiant Disorder and/or CD (Conduct Disorder) (i.e., teachers, psychologists, school counselors, childcare counselors, etc.).

1. *Have the children you treat/manage been diagnosed according to the diagnostic criteria found in either the **DSM-IV** or **DSM-IV-TR**?*

	YES	NO	UNSURE
	☐	☐	☐

2. *Which **ONE** of the following interventions have you found to be most effective in the treatment/ management of:*

	C	B	M	N	FT	OTHER (specify)
AD/HD	☐	☐	☐	☐	☐	☐ _____
ODD	☐	☐	☐	☐	☐	☐ _____
CD.....	☐	☐	☐	☐	☐	☐ _____
AD/HD + ODD	☐	☐	☐	☐	☐	☐ _____
AD/HD + CD	☐	☐	☐	☐	☐	☐ _____

C = Cognitive
B = Behavioral
M = Medication
N = Neurofeedback
FT = Family Therapy
OTHER = combinations of the above (i.e., C +B)

Check only **ONE BOX PER LINE**

3. *Are **MULTI-MODAL** interventions more effective than **MONO-THERAPY** in treating/ managing:*

	YES	NO	UNSURE
AD/HD	☐	☐	☐
ODD	☐	☐	☐
CD.....	☐	☐	☐
AD/HD + ODD	☐	☐	☐
AD/HD + CD	☐	☐	☐

An *example* of a **MULTI-MODAL** strategy is medication **WITH** the added benefit of another strategy. (i.e., behavioral therapy).

An *example* of **MONO-THERAPY** is medication alone, **WITHOUT** the added benefit of another strategy.

4. *How effective would you rate **MULTI-MODAL** interventions in treating/managing:*

	N	S	O	F	A	UNSURE
AD/HD	☐	☐	☐	☐	☐	☐
ODD	☐	☐	☐	☐	☐	☐
CD.....	☐	☐	☐	☐	☐	☐
AD/HD + ODD	☐	☐	☐	☐	☐	☐
AD/HD + CD	☐	☐	☐	☐	☐	☐

N = Never
S = Seldom
O = Often
F = Frequently
A = Always

☞ OVER

5. *How effective would you rate* ***MONO-THERAPEUTIC*** *interventions in treating/managing*

	N	S	O	F	A	UNSURE
AD/HD	☐	☐	☐	☐	☐	☐
ODD	☐	☐	☐	☐	☐	☐
CD.....	☐	☐	☐	☐	☐	☐
AD/HD + ODD	☐	☐	☐	☐	☐	☐
AD/HD + CD	☐	☐	☐	☐	☐	☐

CODING: SAME AS THE ABOVE ☺

6. *To what extent, do you* ***SUPPORT*** *the use of* ***MEDICATION*** *in the treatment/management of disruptive behavior disorders?*

	N	S	O	F	A	UNSURE
AD/HD	☐	☐	☐	☐	☐	☐
ODD	☐	☐	☐	☐	☐	☐
CD.....	☐	☐	☐	☐	☐	☐
AD/HD + ODD	☐	☐	☐	☐	☐	☐
AD/HD + CD	☐	☐	☐	☐	☐	☐

☺

7. *To what extent, is* ***ATTITUDE*** *(willingness or desire to change), on the part of the child,* ***more*** *important than the* ***method of intervention*** *in treating/managing disruptive behavioral problems?*

N	S	O	F	A	UNSURE
☐	☐	☐	☐	☐	☐

☺

8. *With the* ***RIGHT*** *attitude, will* ***ANY*** *intervention (multi-modal or mono-therapy) be effective in treating/managing disruptive behavioral problems?*

YES	NO	UNSURE
☐	☐	☐

9. *What is your occupation* _____*?*

10. *Years of experience treating/managing disruptive behavior disorders* _____*?*

11. *Frequency* **(N, S, O, F, A)** *of treating disruptive/managing disruptive behavior disorders* _____?

Comments: _____

_____. Thank you! **END.**

APPENDIX VI

Les M. Berg
9-52212 Range Road 272
Spruce Grove, AB. T7X 3R6
780-960-6918 (home)
780-992-5997 (work)
E-MAIL: lmberg@ualberta.ca

November 07, 2001

Attention:
Sandra Twigg
Group Case Manager
McMan Association
11821 123 Street
Edmonton, AB. T5l 0G7

Dear Ms. Twigg:

As per our conversation, I am currently conducting a study on Attention-Deficit/Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). The main purpose of my research is to examine treatment practices in the community, particularly when there is a *comorbidity* (i.e., AD/HD + CD vs. AD/HD alone). This information will be used to identify patterns and correlations which may improve our understanding of the underlying causes of disruptive behavior disorders.

I have developed a questionnaire which has been piloted and revised accordingly. It would be greatly appreciated if members of your staff (i.e., psychologists, teachers, childcare counselors) could take a few minutes to complete this questionnaire which is one page in length (both sides). *No identifying information is required on either your staff or your clientele.* I have provided 10 large brown envelopes each containing 6 questionnaires for possible distribution. I am also willing to pick up the envelopes in 2 weeks time, if agreeable to you and your staff.

Participation in this study is voluntary and all responses will be kept confidential (Note: if an employee changes his/her mind after the questionnaires have been retrieved by myself, this particular questionnaire cannot be excluded as it would be impossible to identify which one is their's.) The information obtained in this study is primarily for the completion of my Master's thesis, however, the data may also be used for future publications and/or conference presentations. The questionnaires will be kept in a secure location, removed only as needed, and shredded in 6 months.

I am working under the direction of Dr. Jack Goldberg, a professor with the Department of Educational Psychology, Faculty of Education, University of Alberta (492-5245). This study has been approved by the Research Ethics Board within this Department. If you have any questions or are unable to participate in this survey, please contact me at 960-6918 (home) or 992-5997 (work). Thank you again for any cooperation which you and your staff can render.

Sincerely,

Les M. Berg.

Les M. Berg
9-52212 Range Road 272
Spruce Grove, AB. T7X 3R6
780-960-6918 (home)
780-992-5997 (work)
E-MAIL: lmberg@ualberta.ca

November 07, 2001

Attention:
Don Church
Education Director
Bosco Homes
10435 76 Street
Edmonton, AB. T6A 3B1

Dear Don:

As per our conversation(s), I am currently conducting a study on Attention-Deficit/Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). The main purpose of my research is to examine treatment practices in the community, particularly when there is a *comorbidity* (i.e., AD/HD + CD vs. AD/HD alone). This information will be used to identify patterns and correlations which may improve our understanding of the underlying causes of disruptive behavior disorders.

I have developed a questionnaire which has been piloted and revised accordingly. It would be greatly appreciated if members of your staff (i.e., psychologists, teachers, childcare counselors) could take a few minutes to complete this questionnaire which is one page in length (both sides). *No identifying information is required on either your staff or your clientele.* I have provided 10 large brown envelopes each containing 6 questionnaires for possible distribution. I am also willing to pick up the envelopes in 2 weeks time, if agreeable to you and your staff.

Participation in this study is voluntary and all responses will be kept confidential (Note: if an employee changes his/her mind after the questionnaires have been retrieved by myself, this particular questionnaire cannot be excluded as it would be impossible to identify which one is their's.) The information obtained in this study is primarily for the completion of my Master's thesis, however, the data may also be used for future publications and/or conference presentations. The questionnaires will be kept in a secure location, removed only as needed, and shredded in 6 months.

I am working under the direction of Dr. Jack Goldberg, a professor with the Department of Educational Psychology, Faculty of Education, University of Alberta (492-5245). This study has been approved by the Research Ethics Board within this Department. If you have any questions or are unable to participate in this survey, please contact me at 960-6918 (home) or 992-5997 (work). Thank you again for any cooperation which you and your staff can render.

Sincerely,

Les M. Berg.

Les M. Berg
9-52212 Range Road 272
Spruce Grove, AB. T7X 3R6
780-960-6918 (home)
780-992-5997 (work)
E-MAIL: lmberg@ualberta.ca

November 07, 2001

Attention:
Loretta Della Mora
Clinical Director
Edmonton Integrated Services
#305 10534 - 124 Street
Edmonton, AB. T5N 1S1

Dear Ms. Della Mora:

As per our conversation, I am currently conducting a study on Attention-Deficit/Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). The main purpose of my research is to examine treatment practices in the community, particularly when there is a *comorbidity* (i.e., AD/HD + CD vs. AD/HD alone). This information will be used to identify patterns and correlations which may improve our understanding of the underlying causes of disruptive behavior disorders.

I have developed a questionnaire which has been piloted and revised accordingly. It would be greatly appreciated if members of your staff (i.e., psychologists, teachers, childcare counselors) could take a few minutes to complete this questionnaire which is one page in length (both sides). *No identifying information is required on either your staff or your clientele.* I have provided 10 large brown envelopes each containing 6 questionnaires for possible distribution. I am also willing to pick up the envelopes in 2 weeks time, if agreeable to you and your staff.

Participation in this study is voluntary and all responses will be kept confidential (Note: if an employee changes his/her mind after the questionnaires have been retrieved by myself, this particular questionnaire cannot be excluded as it would be impossible to identify which one is their's.) The information obtained in this study is primarily for the completion of my Master's thesis, however, the data may also be used for future publications and/or conference presentations. The questionnaires will be kept in a secure location, removed only as needed, and shredded in 6 months.

I am working under the direction of Dr. Jack Goldberg, a professor with the Department of Educational Psychology, Faculty of Education, University of Alberta (492-5245). This study has been approved by the Research Ethics Board within this Department. If you have any questions or are unable to participate in this survey, please contact me at 960-6918 (home) or 992-5997 (work). Thank you again for any cooperation which you and your staff can render.

Sincerely,

Les M. Berg.

APPENDIX VII

FACULTIES OF EDUCATION AND EXTENSION RESEARCH ETHICS BOARD

Ethics Review Summary Form

Name: Les Berg

Project Title: Disruptive Behavior Disorder

ASSESSMENT	YES	NO
1. Does the researcher provide a clear statement of what is to be done?	☑	☐
2. Are the data collection procedures clearly specified?	☑	☐
3. Have copies of instruments or samples of items to be used, including tests, interview guides, observational schedules been provided? [In the case of well-known instruments, provide the name only.]	☑	☐
4. Is there a clear explanation of the involvement of human participants?	☑	☐
5. If underage, legally incompetent, or other "captive" subjects are used, has their right and that of their parents/guardians to opt out been attended to?	NA	☐
6. Has provision been made for a) explaining the nature, length and purpose of the research to the participants and/or guardians and b) assuring them that deception will not be used?	☑ ☑	☐ ☐
7. Has the matter of informed written consent of participants been attended to?	☑	☐
8. Has the right to opt out at any time without penalty been provided?	☑	☐
9. Are the procedures for providing anonymity and confidentiality acceptable?	☑	☐
10. Is it clear that the study will not be harmful or threatening to the participants or others?	☑	☐
11. Please specify any other aspect of the study that needs special ethical consideration.		

Statutory member's recommendation:

☑ Approve ☐ Refer to REB

☐ Resubmit with the following changes:

Martin

Signature of REB member Date July 6, 2001

Signature of committee member Date

APPENDIX VIII

FACULTIES OF EDUCATION AND EXTENSION RESEARCH ETHICS BOARD

Graduate Student Application for Ethics Review

Name: Les M. BERG **Student ID:** 376261

E-mail: lmberg@ualberta.ca

Project Title:

Disruptive Behavior Disorders and Comorbidity: Implications for Treatment

Project Deadlines:

Starting date Jan 01/01 Ending date Dec 01/01

If your project goes beyond the ending date, you must contact the REB in writing for an extension.

Status:

☐ Master's Project ☒ Master's Thesis ☐ Doctoral Thesis ☐ Other: (Specify)

The applicant agrees to notify the Research Ethics Board in writing of any changes in research design after the application has been approved.

Leo m. Berg
Signature of Applicant Date July 10, 2001

The supervisor of the study or course instructor approves submission of this application to the Research Ethics Board.

x [signature]
Signature of Supervisor/Instructor Date 10 July 2001

ETHICS REVIEW STATUS

☑ Review approved by Unit Statutory member/Alternate

☐ Review approved by Research Ethics Board

☐ Application not approved

M.H.Gil
Signature of REB Member Date July 10, 2001